NATIONAL FEDERAL MILK MARKETING ORDER

PRICING FORMULA HEARING

DOCKET NO.: 23-J-0067; AMS-DA-23-0031

Before the Honorable Jill Clifton, Judge

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Zionsville, Indiana

December 7, 2023

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(Please note: Appearances for all parties are subject to change daily, and may not be reported or listed on subsequent days' transcripts.)

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THURSDAY, DECEMBER 7, 2023 -- MORNING SESSION

THE COURT: Let's go back on record.

We're back on record it is 2023, December 7th. It's a Thursday. It is day 42 of this hearing. And I'd like to ask if there are some preliminary matters before the next witness testifies.

I see none.

The next witness may come to the stand. I believe that's Mr. Hau, H-A-U.

MR. ENGLISH: Good morning, Your Honor. Chip English for the Milk Innovation Group. We had a fair bit of discussion a little after 5 o'clock yesterday, so just to clarify, we -- we handed out Mr. Hau's testimony, and it was marked, I believe, as Exhibit 432.

THE COURT: That's correct. It is Exhibit 432, and it's also marked as Hau, H-A-U, 001.

MR. ENGLISH: Thank you very much, Your Honor.

And as with some prior witnesses, I wish to clarify -- I'll actually do so with Mr. Hau after you swear him in.

THE COURT: All right. Would you please state and spell your name? And this will also be a test of the microphone location compared to where you are.

THE WITNESS: Okay. My name is Jim Hau, J-I-M, H-A-U.

THE COURT: Good. You are loud and clear. That's great.

Have you previously testified in this proceeding?

THE WITNESS: I have not.
THE COURT: I'll swear you in.
JIM HAU,
Being first duly sworn, was examined and testified as follows:
THE COURT: Thank you.
MR. ENGLISH: So, again, Your Honor, Chip English for the Milk Innovation Group.
DIRECT EXAMINATION
BY MR. ENGLISH:
Q. So, Mr. Hau, you're here on behalf of Maple Hill Creamery; is that correct?
A. That is correct.
Q. And Maple Hill Creamery is not a member of the Milk Innovation Group, correct?
A. No.
Q. And it is not actually presently a member of the International Dairy Foods Association, correct?
A. It is not.
Q. But you are appearing today, and you asked Davis Wright Tremaine to assist you partially because we have an -- an existing professional relationship, correct?
A. That is correct.
MR. ENGLISH: Your Honor, Mr. Hau will read his statement, and I believe based upon things he heard yesterday, he may have a few supplemental remarks.
BY MR. ENGLISH:
Q. So, Mr. Hau, please provide your statement, which

is Exhibit 432, also Hau-001.

A. Good morning. My name is Jim Hau. I am both the president and the CFO for Maple Hill Creamery and oversee all operations of our small company. And I can confirm Maple Hill Creamery is a small business per the SBA definition based on our number of employees.

I have a bachelor's of science in business administration from Marquette University and an MBA from Northwestern University. My career includes over 35 years in the consumer products business working with both large public international corporations and small private startups. My experience with the dairy industry spans just over 20 years and includes Unilever's ice cream business, White Wave Foods' Horizon business, Pantheryx's colostrum --

THE COURT: Now, these words are important to capture in the transcript, so read them slowly, and it would be wise to spell these businesses.

BY MR. ENGLISH:

Q. And just to be clear, Mr. Hau, we all tend to read faster than we think we are, and so our wonderful court reporter really needs you to read much more slowly.

A. Okay.

Q. I think the statement people have said is, perhaps like we're reading to third grade school children, some of whom may be in the room.

A. So -- so let me back up on the experience.

So Unilever's ice cream business, that's

U-N-I-L-E-V-E-R; White Wave Foods, W-H-I-T-E, W-A-V-E, Horizon's business; Pantheryx, that one's P-A-N-T-H-E-R-Y-X, colostrum supplement business; and now Maple Hill.

Maple Hill is headquartered in Kinderhook, New York, where we have operations spread throughout the country, and I'm based just outside of Boulder, Colorado.

Maple Hill is a young company started in 2009, and a pioneer in dairy's fastest growing segment, grass-fed organic milk. While small, with just 18 employees, we have quickly grown to national distribution in over 8,000 retail locations, including the largest retailers in the country like Kroger, Safeway/Albertsons, Walmart, Whole Foods, Publix, and Sprouts. Milk from Maple Hill Creamery can be found in every region of the continental United States and Hawaii.

Our products include fluid milk, yogurt, kefir, and butter, and are produced in four plants largely in the Northeast. The plants are third party co-packers as we do not have the financial resources to build our own factories.

Fluid milk is the vast majority of our revenue and is currently produced in one plant that produces Class I products. Maple Hill Creamery products have retail sales over $85 million across retailers nationwide, and we hold the number two share in our fluid -- in our key fluid milk segment.

Today I'm hoping to bring a few key points to the

attention of the USDA, of this committee.

Key point number one: Our business is critical to the success of our 120 independent small family farms.

Importantly, while we have just 18 employees, we represent over 120 small family farms who participate in one of four co-ops but ship directly to Maple Hill. In our business, "small family farm" is not a cliche as our average farm milks just over 50 cows. Grass-fed organic dairy represents not just the most innovative and fastest growing segment of the dairy milk shelf, but it is also the most effective way for the small family farms to be able to compete and co-exist in an increasingly large industrial farm environment.

In most cases, Maple Hill is the only dairy customer for the these family farms. The vast majority of our farms are in Upstate New York with a few in Pennsylvania as well, and participate in the Federal Order 1 area. The vast majority of the milk they produce for us goes into Class I fluid milk.

Key point number two: The grass-fed organic business represents an important source of innovation to the dairy industry.

The grass-fed organic dairy business accounts for just over 1% of the total dairy retail milk sheds. While on a volume basis, the dairy milk business is down 2.5% this year, grass-fed organic has grown 7%.

In recent years, plant-based beverages have been able to erode dairy share of the beverage market by making

claims around healthier alternatives that are better for the environment. The grass-fed organic dairy segment is the dairy industry's most powerful tool to push back on this erosion. Grass-fed organic dairy is both healthier for the consumer, has the most naturally nutrient-dense dairy product on the market, and healthier for the environment due its most regenerative agricultural nature.

This latter point has been recognized by the USDA in its recent award of a Partnership for Climate Smart Commodities grant to our company and its farmers.

Key point number three: The USDA has wisely invested in this regenerative space in support of growing the grass-fed organic segment, which enhances the overall dairy industry.

The USDA dairy grant -- the USDA grant recognizes the importance of supporting the farmers in this growing category and the importance of helping to market the product given its scarce resources due to higher costs and thin margins. Maple Hill's success to date has come from educated consumers who have done their research and recognize our product's benefits. Our future success is dependent on our ability to market a high quality product at a reasonable price to a broader consumer base.

The higher cost of grass-fed farming including the price we pay farmers, which is well above FMMO rates, makes marketing funds scarce in an already thin margin dairy business. It also forces us to price our product at the most premium level in the dairy case, which precludes

what would otherwise be higher growth. Those high costs and thin margins represent, I believe, the most significant impediment to our ability to grow this innovative dairy segment. The USDA grant will help with that effort.

Key point number four: Pooling is a tax on our business which receives no benefit from the FMMO process.

Because we pay our farmers well above the FMMO rates, they do not get any benefit from pooling funds. Maple Hill, while paying into the pool, also does not derive any benefit from pooling funds. We balance our own milk. Our customers and consumers do not benefit from pooling, as our product is already available in every region of the country.

From a pricing standpoint, pooling actually increases consumer prices rather than offering a relief. For these reasons, pooling is simply a tax on grass-fed organic and all organic dairy businesses that deprives our companies of much needed funding so the dollars can be distributed to the conventional segment. This adds to the already high cost of grass-fed dairy development and, as previously mentioned, weakens growth.

I don't believe that in all the hours of testimony heard to date anyone has disputed these points, likely because we are all in agreement that there is no rationale to dispute them. However, rather than addressing the problem, the issue's been ignored and now threatens to be exacerbated.

Key point number five: Pooling is a material hit to profitability of small growing companies and, therefore, impedes innovation even before the proposed increases, which will materially worsen the situation.

While it would be appropriate for me to share -- while it would be inappropriate for me to share confidential Maple Hill financial information, I would like to share a theoretical example based on practical numbers of the impact of the pooling tax.

A small, early-stage, organic milk company, with revenue of about $25 million, is likely to incur a pooling tax of approximately $600,000. Likely, that startup is losing money and already fighting for investment dollars. However, assuming they are lucky and can garner what would be considered a healthy dairy margin of say 5% EBITDA -- that's E-B-I-T-D-A -- they are getting $1.2 million that is available for taxes, interest, and reinvestment to grow their business. Giving $600,000 of that to conventional farms through pooling has a very material impact on the ability -- on their ability to reinvest and grow. The proposals being considered here today, that could take that up another 80%, would eat up another $480,000.

The impact this could have on small businesses entering the space with innovative products cannot be overstated. In many cases, maybe most cases, they simply will not be able to get off the ground. If Maple Hill had incurred this higher pooling tax in the early days, it is likely we would not exist today. Even though we have

grown to a stronger and more established company, if the considered increases were to go through, we will likely need to reconsider material aspects of our growth strategy.

Let me now explain our opposition to Proposal 19. NMPF's Proposal 19 seeks to increase the Class I price differential from its current range of $1.60 to $6 to a proposed range of 2.20 to 7.90.

THE COURT: So that's $2.20.

THE WITNESS: To $7.90.

THE COURT: Thank you.

THE WITNESS: This will compound the problem for organic dairy farms. For this reason, we oppose NMPF's Proposal 19.

USDA must reject the proposal for multiple reasons:

1. The increase would represent a greater taxation and further slow progress of this important and growing segment of the dairy industry.

2. We do not see logic and justification for the current Class I price differential, even remaining at $1.60, given current supplies of fluid milk.

3. Based on my experience in the market, there is more than sufficient supply of fluid milk. Raising the Class I price differential will only serve to increase unneeded conventional milk supply, which is the slowest growing segment, dairy segment, and harm organic suppliers, including grass-fed, which is the fastest

growing dairy segment.

4. The differential increase will have the impact of increasing supply at the same time it decreases demand, because it robs valuable investment in market growth and innovation, which drives demand only to redistribute it to supply. Such an imbalance is not healthy impact on the dairy industry or its farmers, the very people meant to be helped by the increase.

We cannot pass on --

Number 5. We cannot pass on a commensurate cost increase as proposed here without risking the loss of customers and/or beverage market share. This result will harm both my company and my farmers, and could mean even fewer Class I dollars in the pool. Moreover, it will impede our ability to innovate and market an important segment of the dairy industry as it works to reverse the losses of beverage market share.

Number 6. The NPF [sic] proposals do not represent the best interests of our dairy farmers.

THE COURT: Could you start that sentence again, please, number 6.

THE WITNESS: Sorry.

The NMPF proposals do not represent the best interests of our dairy farmers, and in fact, are openly willing to sacrifice the best interests of our small family farms in favor of other interests they represent.

7. The differential change is not necessary to ensure distribution of milk to alleged deficit regions of

the county, as Maple Hill distributes milk from the Northeast to all parts of the country without any support of FMMO pricing.

8. The only impact these proposals will have on our dairy farms is to reduce investment in our business, thus inhibiting their ability to grow, other small family farms' ability to participate in this growing segment, and hamper the dairy industry's ability to use innovation to expand market share and compete against others in the beverage industry, including the plant-based segment that continues to erode dairy consumption in the U.S.

9. In fact, none of the rationale put forth in the NMPF proposal is true for Maple Hill or the 120 dairy farms with which we partner. The increase in Class I differential represents a potential 80% increase in the pooling tax on our business, with zero benefits to our stakeholders, and will do nothing to increase pay prices to our farmers (in fact, it is more likely to have the opposite effect), and it will do nothing to increase the already national availability of milk from those farms (in fact, it is more likely to have the opposite effect).

We pay grass-fed organic farms a premium because this type of dairy farming is more difficult. Without that premium, there is little financial incentive for farmers to convert to grass-fed organic. Thus, increasing the pooling tax and inhibiting the ability to pay farmers more undermines the ability to expand grass-fed organic dairy farming.

THE COURT: You read it perfectly, but I would like you to read that sentence again.

THE WITNESS: Thus, increasing the pooling tax and inhibiting the ability to pay dairy farmers more undermines the ability to expand grass-fed organic dairy farming.

10. This increased tax burden will increase consumer prices for consumers who can pay it and reduce the number of dairy consumers where affordability has teetered over the edge of manageability.

11. Finally, an increased pooling tax burden supported by the USDA, which is punitive to the regenerative grass-fed organic segment, will philosophically and financially conflict with the USDA's desire to support regenerative agriculture as demonstrated by the recent PCSC grant award. The USDA is in the process of investing $20 million with Maple Hill to expand friendly, organic, grass-fed farming. Now we are here, today, considering a damaging tax on the organic business which will undermine the very rationale for the investment the USDA just announced.

In sum, we foresee reduced investment in dairy innovation leading to shrinking dairy share of the beverage market, higher prices for consumers, and potentially lower pay prices for farmers.

I travelled a considerable way today to make the Department aware of these issues because it will materially affect the way we move forward and impact all

aspects of our business and in a negative way. I'm grateful for the opportunity to make the trip and speak to you today, because this represents critical issues for our ability to compete and move forward as a business.

For the sake of all of our farmers, consumers, and stakeholders, I hope I have been clear on the impacts and properly represented the problem this proposal represents for my company and for the 120 small family farmers who, with this growing grass-fed organic segment, have found a way to compete, at least to this point, in an industry that continues to favor large corporate farm entities.

Your Honor, that's the -- that's the end of my submitted testimony. As Mr. English said following yesterday's comments, I would like to add something, if I could.

THE COURT: Yes, you may. Thank you. And I appreciate that you addressed me directly, but it interferes with everyone else's ability to hear you.

THE WITNESS: Got it. Feel free to correct me, I won't be offended.

If -- if my testimony should get lost and you can only remember one thing I say today, please remember this point: Milk is not inelastic. Milk is not inelastic. If we raise prices, volumes will go down. If we drop prices, volumes will go up. Milk is not inelastic. This is not ivory-tower stuff based on theoretical data from models from the 1970s or 1980s. This is real world stuff, and I can provide you real world examples.

30 days ago we ran a promotion. We dropped our price 7%. I saw a spike in my volume of 30%. When that promotion ended, the price went back up 7%, my volume dropped 30%. Right? It's the reason we run promotions. We know if we change price, volume will change. That's why we promote.

We took a price increase, our last major price increase was in early 2022. When we took that price increase, our volumes fell. In fact, we had at least one retailer who came to us and said, we are going to take you off the shelf because your price is too high. That's volume that I don't have because my price is too high. If I move my price, my volume changes. Milk is not inelastic.

The last major price increase we took before that, I believe, was 2019. And I wasn't here for that, so I may have the date wrong. But the blowback on volume loss was so great that we had to reverse course and adjust our prices back -- back down in order to keep our business. Milk is not inelastic.

THE COURT: And because "inelastic" sounds so much like "elastic," your emphasis is that milk is?

THE WITNESS: Milk is not inelastic. That's not unique to Maple Hill. I can assure you it's -- it's most definitely true for Organic Valley and for Horizon, and I know that because they are competitors and I watch them on a daily basis. I -- I have a fair amount of confidence that it's not true for any organic or specialty milk or

value-added differentiated milk.

I would like just, in sum, to say, I want to make sure that the USDA knows that milk is not inelastic. If our prices go up, our volumes will come down.

Thank you.

THE COURT: Thank you so much, Mr. Hau. This is -- this is a wonderful viewpoint that we needed to hear. I'm so glad that you are here.

There are a number of comments you make that lack the illustrative examples to prove them, so I hope on cross-examination you can bring this more to our attention. And if you are not asked to do that on cross-examination, I'm going to ask you to do that on your own redirect.

In other words, if you make a summary statement, what are some of the ways you can persuade people in this room that what you are saying is true?

THE WITNESS: I appreciate that opportunity, Your Honor.

THE COURT: All right. Very good.

Mr. English.

BY MR. ENGLISH:

Q. Good morning again, Mr. Hau.

A. Good morning.

Q. So you're not here to oppose the existence of the Federal Milk Marketing Order system, are you?

A. I prefer it not exist, but I'm here out of concern that it get even worse than it already is.

Q. And your real concern is that you produce a product, organic grass-fed, that doesn't fit into the Federal Order system, correct?

A. That's correct.

Q. And are you aware that the Milk Innovation Group made a proposal that USDA declined to hear that would have differentiated the treatment of organic milk?

A. So I have been told.

Q. And USDA declined to hear that, correct?

A. Correct.

Q. And so instead, what you are here to say is, you can't just keep increasing our price, because if you do that, that money is not going to organic, it's going elsewhere, correct?

As the differential goes up, that money, that increased payment that you have to make that you call a tax, isn't going to do anything, in fact, it's going to hurt grass-fed organic, correct?

A. And that's correct. I would take that one step further, actually. I'm here today -- if this goes through, Maple Hill will likely survive. We have grown enough and we're strong enough now that I don't think we will go out of business.

That said, I will have to change my strategy. I can't -- I can't continue to grow and thrive and flourish the way we are if my costs go up that extensively.

The broader point I want to make, though, is my business is not unique here. Innovation that comes into

dairy tends to come from small companies like mine. I have had the benefit of a few years to -- to build and get our act together, so to speak, so we'll be okay. It's going to hurt, it's going to mean something different, but we'll be okay.

But other innovators, other small companies out there that are trying to do what we have done since 2009 who are starting up today aren't going to make it, right?

So if this goes through, we will be killing innovation in the dairy industry. You won't kill me, you will wound me, but you will prevent other small companies who have ideas and are trying to get started from getting started. It just won't be affordable.

MR. ENGLISH: That's all I have, Your Honor.

THE COURT: Who would like to begin cross-examination?

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Good morning, Mr. Hau.

A. Good morning.

Q. My name is Ryan Miltner. I represent Select Milk Producers.

I wanted to re-ask your question Mr. English did because I wasn't clear on your answer.

When he asked if you are here opposing the existence the Federal Milk Marketing Order program, did you say you prefer it did not exist?

A. That would be my preference.

Q. Okay.
A. I'm sorry, let me clarify that.
Q. Please.
A. I would prefer that those of us on the organic side that do not participate in the FMMO process not be obligated to pay into the pooling fund.
Q. Now, I understand from your statement that you do not own any processing facilities, correct?
A. That's correct.
Q. And is all your of your milk purchased from cooperatives?
A. Yes.
Q. So does -- does Maple Hill itself make any payments into the Federal Order pools?
A. We do.
Q. You do. I have seen your product on the shelf in my little part of the world in Ohio, which is where I am. I have not tried it. I'm sure it's a fine product. I'm sure it's very, very good. I forget what it's priced in my market.

I looked online in Sprouts right now, a Whole Foods type market in predominantly the Southwest, for the purpose of the record. And they have got it listed at $6.99 a half gallon.

Does that sound about right for the retail price for your fluid milk products?
A. That's correct. You will find it on average between $6.59 and $6.99 for a half gallon.

Q. That's a half gallon of whole milk, right?
A. Correct.
Q. Sprouts also has a 6.99 half gallon of 2% milk. Are they generally priced in alignment?
A. That's correct.
Q. I don't want specific numbers, unless you want to share them, but when you -- when you contract with a cooperative for milk, are you generally paying a fixed price for a period of time; in other words, you know, we'll pay $40 a hundredweight for milk for the next six months or a year or a something like that?
A. To be clear, we contract directly with the farmers. We use the co-ops that they -- they handle our payroll and, you know, help with the producers with farm things and that type of thing, but we contract directly with the farmers. We -- it is a contracted price. There is a formula that all of our farmers participate.
Q. Do you use a formula that fluctuates based on the underlying regulated prices?
A. No.
Q. So I understand that there are -- when you look at a retail shelf price of milk, there's a lot in there that's not milk, in terms of cost, right? You have -- you have packaging, correct? And transportation, you have profit for the processor, and a markup from the retailer, and probably some other things, correct?
A. That is correct.
Q. Now, when I multiply out a per hundredweight

equivalent of your shelf price, though, I get whole milk -- well, really it would be both -- $162.59 per hundredweight on a retail equivalent.

Does that sound right?

A. I'm not familiar with that number. You have to walk me through how you got to that.

Q. Sure. And there's about 11.6 gallons of milk in a hundredweight, correct?

A. Okay.

Q. So if I take 6.99 and I multiply that times -- well, I took 11.6 times two, right? Because there are 24 half gallons, about 24 half gallons or so in a hundredweight, and that's the equivalent hundredweight, per hundredweight price of your product to the consumer.

A. I would agree with your assumptions there if that's the number you get to. That makes sense. It's not a number we typically look at.

Q. Everything we look at here is a number.

THE COURT: Say it again?

MR. MILTNER: I said everything we look at here tends to be in hundredweight rather than gallons.

BY MR. MILTNER:

Q. Again, I don't have a point of reference for what grass-fed organic milk is, and I don't want you to share something you don't want to put on a public record. But what is a -- what is a reasonable return to a farmer who is going to be organic grass grazed if they -- if they are saying these are my costs, right, I need this much a

hundredweight to cover my farm costs, what do you think that would be?

A. I can't comment on the economics of the farmers because every farmer is different. And because these are small family farms, many of them have side hustles that help keep the family farm going. But predominantly, they rely on the dairy to fund their farm. It's -- without going into specifics of what we pay, or our numbers are, it's not unusual for a grass-fed farmer to expect to get 38 to $40 a hundredweight for their milk.

Q. Which is a modest increase over, I think, what an organic farmer would be paid, grass-grazed aside?

A. I would expect an organic farmer to be somewhere in the $34 range.

Q. I want to ask about elasticity because you heard part of this yesterday and we heard testimony about it earlier in the hearing.

Would you agree with me that own-price elasticity is not a static number? In other words, if the elasticity at one price point might be different than the elasticity of the same product at a higher price point, would you agree with that?

A. So in other words, while I might be willing to spend $0.10 more for a half gallon of milk, I'm not willing to spend $100 more for a half gallon of milk.

Q. I think that's part of what I was asking.

A. I would agree.

Q. And you heard the testimony from the gentleman,

Mr. Carson, I think, from United Dairy yesterday?

A. Yes.

Q. And he said that a gallon of milk in the 2 to $3 range at a somewhat different price and purchase response than a gallon of milk at $5 price point.

Did you hear that testimony?

A. I did.

Q. Which kind of is -- I interpreted that as the same point, that the demand is more inelastic at a lower point than at a higher price point. At least that's how I interpret it.

Would you have interpreted that similarly?

A. I would. I would agree that taking pricing increases on commodity conventional milk is lower risk than taking a price increase on the faster growing, more consumer demanded specialty value-added differentiated products that tend to be priced higher.

Q. And, you know, all the lawyers up here don't want to ever get in the position of testifying, but for the purposes of your frame of reference, the cooperative I represent founded fa!rlife and was an equal partner in that until it was sold, so we are familiar with higher price points and value-added milks.

Would you -- with your product at essentially a $14 a gallon price point, would you expect that your elasticities would be different than those for someone selling a gallon of milk at 2.99?

A. Absolutely.

Q. And you described a price change you made in relatively recent times.

Was that around the Thanksgiving holidays?

A. Our last significant price increase would have been in February of '22.

Q. Okay. And I was -- I'm sorry, you did speak to two of those. I was -- I'm referring to the --

A. The promotion.

Q. -- the promotion.

Was that over a holiday period?

A. It was the first week in November.

Q. Okay. So in -- within your company, a promotion like that, would you consider that a direct marketing expense?

A. We would -- we would account for it as a price discount, so it comes out of our revenue.

Q. In addition to lowering the price, do you do any -- any educational work to your customers or your ultimate consumers that, you know, hey, we're offering a special?

A. Are you speaking of marketing?

Q. Yes.

A. We do do some marketing. We don't do a lot of marketing, mostly because it -- we just don't have the funds to do it. That's where the USDA grant is helping quite a bit.

When -- when you -- when you innovate -- and we saw it in the organic business when organic started, and

we're seeing it now in grass-fed organic as grass-fed organic takes off. Your -- your tip of the spear, your first consumers are your best consumers. They are the most educated ones. They go find you. You don't have to market to them. They are doing their research.

In the case of grass-fed organic, they are saying, I want to give something better to my family, so I'm looking at organic and I'm looking at what organic gives me, and as I'm doing my research, I'm learning about this grass-fed organic, which is even better, so now I want grass-fed organic. Who is in the grass-fed organic space? Oh, this Maple Hill looks good.

And they come to us. That's terrific. Right? That's how you build a business. You offer that consumer something that they are looking for without a lot of prompting.

The way you grow, and the way you thrive, and the way you succeed, is you broaden that base. So now I have got those consumers, and that's great, that gives me a base to start with. Now my focus is, how do I convince more consumers? And those are harder to find, right? Like yourself, as you described, right? I have to go out and tell you. I have to go out and market and get in front of you. That's the hard part. That costs money, right?

And that's where it becomes difficult in a thin margin business, like grass-fed organic, or quite frankly, any organic or dairy for that matter, to spend those

dollars. But we do do it on a -- what I'll call a gorilla basis. A little social media here and there. If I can get a PR article, you know, somebody to write an article to talk about us, that's what you try to do because it's inexpensive and you can reach a broad base.

Q. Thanks for that background.

Did you say your discount -- on that last discount was at $0.50 a unit?

A. The last promotion?

Q. Yes.

A. In November? It was about 7% -- it was -- it was about $0.60 on a 6.60 price.

Q. Okay. So the -- what would be 6.59, is now 5.99, if I went to the store that week?

A. Correct.

Q. And your products are, from what I saw, for as good as the internet might be, $0.50 a unit above convictional organic, if that makes any sense? That's not grass-grazed organic.

A. Could you repeat that?

Q. Yeah. I'll make it a little more clear.

If -- if -- from what I have seen, if I went to the store and Organic Valley whole milk was 5.49 a gallon, you would be at -- I'm sorry -- if Organic Valley would be essentially $0.50 lower than you on the shelf, for organic non-grazed milk?

A. For their standard organic offering without the promotion, generally about $1 difference.

Q. Okay. So if you are trying to target that second layer customer, right, and you -- you know there's a bunch of people out there that might be buying Horizon or Organic Valley or another premium milk, but they are paying $1 less per unit, when you offer a discount and the regular customer's thrilled, but you are looking at maybe the person who would otherwise pick up Horizon is going to give me a shot this time, correct?

A. I'm trying to get a trial, correct.

Q. And some of those consumers are going to take your product home and try it and love it, and come back next week, and they are going to grab it, and maybe not, it might not matter that the price is -- is back up to regular -- the regular price, correct?

A. Correct.

Q. Some of them, though, are going to try them and say, yeah, this is fine, but to me, I don't see a difference between this and OV, and I'm going to save myself $1 a gallon, or $1 per unit, and continue purchasing what they have -- they are going to make a price decision and not switch brands, correct?

A. They are going to make a value decision that says this might be better, maybe it is not better, but if it is better, is it worth an extra dollar to me? Some will say yes, and some will say no.

Q. Okay. When the economists look at that situation, they have to unpack a whole lot more than pricing when they measure that elasticity, don't they? Because it's

not just own-price elasticity, it is substitution elasticity, correct?

A. I think -- I think I'm with you.

Q. Okay. And all I'm trying to say is we have a bunch of economists and folks who do it day to day, trying to figure out what the elasticity is. Own-price elasticity at a conventional price point is only one part of the question, correct?

A. I think I'm with you.

Q. Okay. I think what I'm trying to say is that your experience, I absolutely believe it, not just because you are under oath, it makes logical sense. But there are -- there are -- when you say there's a 30% change in your demand week to week, you have got a lot going on there besides just the price of our product moved, correct?

A. I'm not sure I understand what you mean by that.

Q. Okay. I'm trying to figure out how to better articulate it, and maybe I'm just trying to summarize for my own sake the answers you have already given, so I will leave it at that for the time being. If I can think of a better way to phrase it, I may pop back up here.

MR. MILTNER: But I thank you for the answers you have given.

THE WITNESS: Okay.

THE COURT: Who next has cross-examination for Mr. Hau?

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CROSS-EXAMINATION

BY MS. HANCOCK:

Q. Good morning, Mr. Hau. Nicole Hancock on behalf of National Milk.

Are you regulated on Federal Order 1?

A. Correct.

Q. What is the name of the entity that's regulated on that on that order? Do you know what it's identified as through the USDA?

A. I do not.

Q. Is it NFO Maple Hill?

A. We use -- there's basically four co-ops that our farmers use. The biggest one would be DFA. NFO is one of them as well.

Q. What are the others?

A. I believe it is United Ag and Producers.

Q. Okay.

MS. HANCOCK: Thank you very much.

THE COURT: Who next has cross-examination before I turn to the Agricultural Marketing Service?

Mr. English, if you have something further before I turn to the Agricultural Marketing Service.

MR. ENGLISH: I thought it would make sense, Your Honor, in the context that it's a direct follow-up on Mr. Miltner's questions.

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REDIRECT EXAMINATION

BY MR. ENGLISH:

Q. I think maybe we got a little confused about what happens in terms of payments.

I think you said that the co-ops help you with the payroll, correct?

A. Correct.

Q. To the extent that there is a producer settlement fund payment due, even though they help you with the payroll, do they send you a bill for that?

A. Yes.

Q. Okay. So -- so Maple Hill Creamery pays the producer settlement fund payment through the co-ops, correct?

A. Correct.

Q. And that is a highly variable number every month, correct?

A. I believe so.

THE COURT: Your response was what?

THE WITNESS: I believe so.

BY MR. ENGLISH:

Q. And I certainly do not want confidential information. Mr. Miltner has asked -- or he's done his little research -- not little research -- real research going out and finding what the retail price of your product was.

That's up to the retailer ultimately, correct?

A. Absolutely.

Q. So whatever their markup is at the retail level, that's their business, correct?
A. Correct.
MR. ENGLISH: That's all I have.
Thank you, Your Honor.
THE COURT: Before I ask Agricultural Marketing Service for questions, I would like to take a five-minute stretch break. Everyone may move around. Don't go too far. I intend to go back on record at 8:55.
(Whereupon, a break was taken.)
THE COURT: Let's go back on record.
We're back on record at 8:57.
Does anyone else have any questions before I ask the Agricultural Marketing Service for questions?
I see none. I invite the Agricultural Marketing Service questions.

CROSS-EXAMINATION

BY MS. TAYLOR:
Q. Good morning.
A. Good morning.
Q. Thank you for coming to testify and your patience to be here for a couple days to get on this morning. I appreciate that.
A. I understand.
Q. So the cross did help clarify a few things, the questions you've answered so far, which was very helpful.
I did want to ask a few more questions on kind of Maple Hill's milk supply and you -- so you say a vast

majority of your milk is fluid, and then it looks like you have other Class II products.

Can you give maybe a percentage of how much of your raw milk goes into Class I versus say Class II or other classes?

A. I can tell you about 65 to 70% of our products are fluid milk. I can't answer your question directly because it doesn't mean 65 to 70% of the milk goes into fluid milk. But -- but obviously milk -- fluid milk, you know, the Class I products require more milk, so it's -- it's slightly more than that.

Q. Okay. And then -- so I think we learned through cross that Maple Hill itself is not a regulated handler. You don't own a plant. So you pool through either the co-op or maybe you get your payment obligation through the pool plant you use to co-pack and that's how you pay your obligation?

A. The obligation comes from the co-packer.

Q. Okay.

A. They are the ones that pay and bill me each month.

Q. Okay. Do you know for your manufactured Class II products, is that milk pooled?

A. It is not.

Q. So you only pool your Class I?

A. Right.

Q. Okay. You talk on page 4, and Mr. Miltner asked a few questions kind of around this subject, about your already thin margin dairy business. We have had testimony

from conventional fluid milk processors about their margins, so I was wondering if you could just talk a little bit about from the organic side, on the grass-fed side, what your margins are, kind of in relation to conventional.

A. I would say the dairy industry in general has thin margins, right? We're not semiconductors. It's difficult for me to do the comparison because I'm a growing company. Right? So a startup, you know, back in the day, it's not true today, but, you know, when we were starting up, we were losing money, right, and that's not uncommon for a startup, especially in this space.

Looking at it just general industry, my general industry experience, I would expect you are getting slightly better margins the higher up in the hierarchy you go. So if you take conventional premium, super premium, the higher up you go, likely the better margins you are getting. But it really depends on the company.

Q. Okay. And it sounded like from what Mr. Miltner was asking, your grass-fed organic milk is pretty high up on the food chain when it comes to the premium?

A. It is super premium.

Q. Okay.

A. I don't think I have the highest margins, but, again, that's based probably more on where I am in the life cycle and the evolution than anything else.

Q. That makes sense.

And you discuss that you do pay your farmers a

fixed price, contracted with them directly, correct?

A. Correct.

Q. Do you use any risk management tools to help cover some of the risk on that side of the business on the supply side?

A. We do not use risk management tools.

Q. Okay. You also discuss how you balance your own milk, and I was just wondering if you could just expand on what that means, how you do that, et cetera, since you don't have a plant. So I just wanted you to talk a little bit more about that.

A. You hustle. The -- so obviously cows don't milk on consumer demand, and consumers don't demand on cow schedules. So, you know, at times, particularly the spring flush, you have more milk than you want, and at times, like, you know, winter, you have less milk than consumers want. To the extent you can, you try to manage that through inventories.

Now, we have -- we are, you know, extended life, extended shelf life product, but still, it's dairy. Right? It goes bad, so you can't -- you can't keep inventories for too long.

So then what you do is you look for opportunities to what I'll call lay that milk off. Right? And your first option is customers who have flexibility. So if, for example, maybe you have a customer who uses powder, they are going to dry it, right? They can keep inventory, so they might be willing to do a deal with you when you

are heavy on milk, I'll take it; when you are light on milk, we'll hold off.

Or you will try to sell it, first as grass-fed organic, if you can find a customer who needs grass-fed organic milk. That can be difficult because, generally speaking, everybody in the industry is -- has the same issues you have: At flush we all have milk, and in the winter, none of us have milk. So that can be difficult, but once in a while you get lucky.

If you can't find someone to take it as grass-fed organic, you will try to find an organic buyer. Right? And then maybe instead of getting $40 a hundredweight, I can get $35 a hundredweight. If I can't find an organic buyer, I'll try to find a conventional buyer. If I can't find a conventional buyer, I'll dump the milk and we take the loss.

Q. Okay.

A. And because of that I tend to underestimate or undershoot for the amount of milk I want. Right? If I'm not sure demand is going to be there.

The two -- the two most considered and difficult decisions we make in our company, number two is pricing. Right? Because in case you missed it, milk is not inelastic.

THE COURT: Milk is not what?

THE WITNESS: Milk is not inelastic.

BY MS. TAYLOR:

Q. I assure you, I wrote that down.

A. So anytime we're talking about pricing, you are taking a significant risk with the business, and we -- we spend a lot of time thinking about that and debating it.

The most difficult and considered decision is letting the farm go. Right? So if at all you can, you take the hit, and you absorb the loss. So if I have to dump milk, I will dump milk. If I have a significant drop in demand such that I can't survive, if I have to keep doing that, then I have no choice but to let a farm go. And you never want to be in that position. It is a terrible position to be in.

I know you guys appreciate that as much as anyone in the room, because you are going to make some decisions here that will have impacts for those farmers.

So you tend to say, if I'm going to need a million hundredweights, maybe I'm going to target 950,000. Right? And you hope that you don't have to try to balance the milk. But when you do have to balance, those are the steps you go through, and you rely on your network of contacts and people in the industry who might need it today or might be able to work with you on something.

Q. Thank you. I appreciate that information.

And you mentioned sometimes one of our options, which is not first on the list, but an option on the list is to sell the milk to some type of powder plant that can dry that milk; is that correct?

A. It might be a powder plant. It might be -- we have sold milk to, for example, ByHeart who is an infant

formula company. Right?

Q. Okay.

A. They dry the milk, so they -- they -- you know, they have had some flexibility in terms of when they can take it, that type of thing.

Q. And when you sell it on that, in that way, is it sold to go through the process as organic grass-fed or just conventional prices?

A. In ByHeart's case, they want it to advertise organic grass-fed, right? They are trying to sell the highest quality, super-premium infant formula, so their game is to say we're using the highest quality super-premium milk in our product. And that works out very well for us. In fact, they -- they have quoted us in their website, we don't co-brand the product. But in that case, it works out very well. They are willing to pay a premium because they are going to use it as a premium product. If you had a conventional manufacturer, and you are going to use it as conventional milk, great, I'm glad you are giving me the best milk. I can't -- I can't realize a value on that, so I'm going to pay you what I would pay a conventional farmer.

Q. Okay.

THE COURT: Would you spell the name of ByHeart? I just want to the make sure I got it right.

THE WITNESS: Yeah, it's B-Y-H-E-A-R-T.

BY MS. TAYLOR:

Q. Okay. And you gave an example on pages 4 into 5,

talking about a $600,000 pool obligation.

And is that an annual number that you calculated there in your example?

A. Yes.

Q. Okay. And you said, "The proposals" -- in this sentence: "The proposals considered here today, that could take that up another 80%."

And I just wanted to kind of ask how you came up with that number?

A. Looking at the NMPF proposal, my point is -- is proposed to go from, I believe, 2.20 to $4.

Q. And that's -- the plant that packages your fluid?

A. Correct.

Q. I had another -- my last question, in two different places you kind of talk, sort of the same thing. In one place you talk about how -- and this is in National Milk's Proposal 19 -- would mean fewer Class I dollars in pool, and in summary, you have a point that says "potentially lower pay prices for farmers."

And I just wondered if you could expand on why you think those things would happen.

A. Okay. So let me first address the potentially lower dollars in the pool. If --

THE COURT: I'm going to ask you to have the mic be a little further from your mouth.

Yeah. Perfect. Thank you.

THE WITNESS: Is that better?

THE COURT: Yeah, so that we don't get --

THE WITNESS: Feedback?

THE COURT: Yes.

THE WITNESS: I hope everyone heard what I had to say. Do you want me to start over?

So -- so the concept here is, let's increase the pooling, and in so doing, there's more money in the pool. That only works if you don't reduce the amount of milk in the pool. And what I'm saying is, if I have to increase my price, and if my peers in the -- in the innovative value-add space have to increase their price, we are going to sell less milk.

Now, if you think that milk's going to conventional, then you are fine, there's still money in the pool. I don't think it's going to conventional, and I can give you reasons for that. And therefore, money comes out of the pool. And that's why I say potentially.

Now, I don't know how consumers are going to react or how far this thing is going to go and how much prices will go up, so I can't say that with certainty. But that's why I say potentially you have less money in the pool.

In terms of farmer pay prices, again, I don't pay the FMMO price, I pay well above the FMMO price. And our ability to pay that price is dependent on our ability to realize profitability in the business. So if the business is growing, then I want more milk, and I'm willing to pay for more milk. And if that means I have to pay a higher price, I will pay a higher price. It is a market driven

force.

If, on the other hand, I need less milk, or I can't afford to pay for the milk because I can't take prices up higher, then I have no choice but to reduce the pay price to the farmer.

Now, again, that's tough to do, because if I put -- if I put farmers out of business, I don't have milk. So reducing prices is generally not the best option. The best option is to increase consumer prices, but I know, I'm already at a threshold where, when I go to do a price increase, I lose shelf space and I lose consumers. So if I have to raise my price, I'm going to lose profitability. Right?

And this is the squeeze that businesses like mine will be in here if you -- if you raise any of our costs 80%. Either I have to go find some place else to lower the cost. And I can't, right? I have got the farmer. That's my biggest cost. So I can reduce price to the farmers, if I thought they could survive on a lower cost.

I could reduce my co-pack cost, but we're small companies. Right? We don't have that kind of leverage. So -- so co-packers generally aren't going to work with us a lot there.

I can reduce any staff. I have 18 employees. You know, I'm the president, I'm the CFO, and if you need a lock changed on the door, I'm the guy you call. So, you know, there's not places to go.

And so this is the squeeze you get in, and this is

why companies go out of business. Right? I can't take price, and my costs are killing me, so I lose profitability, and I have no choice but to close shop.

Or I think what will happen in a lot of cases here, I just won't open shop. Right? I'll sit here and I'll look at the economics of, I've got this great idea, I want to launch this new milk, I think there's a great consumer demand for it, but I can't make the cost and the pricing equation work, so I just won't launch, and that's where you lose the innovation.

Q. And you answered a question from Mr. English, and that the price that -- you know, you're wholesale, and what the retailers do at the market is their decision, on the grocery store shelf?

A. Correct.

Q. So can you just talk a bit about do you do a fixed price to those retailers then?

A. I do.

Q. Okay. And how often is that negotiated?

A. Irregularly. So, you know, once I -- once I set the price, it is set until we need to take an increase or a decrease, and then annually we'll negotiate promotions. Right? Because the promotion benefits both of us, you move more volume. So generally speaking, a retailer is going to want to take 30 to 40% margin to cover their costs, and I know that. So when I take a price increase, I have some idea of what my shelf price is going to be, but I don't control it.

Q. Okay.

A. It might be worth further making the point, when I take a price increase, it's not just my price increase the consumer pays. So, for example, let's say, just to make easy math, I have to take a 10% price increase. Well, let's -- let's walk through the numbers if you will bear with me.

Let's say I'm selling my milk for 6.69.

Q. When you say that, you are selling it to the retailer?

A. Sorry. Very good point. I'm not selling it. The retailer is selling it for 6.69. So it's on the shelf for 6.69, and I need to take, let's say a 5% increase. So let's call it $0.35. So now I'm at $7, about. And the retailer is going to say, well, hang on, I need my 40% margin, so I'm going to tack on 40% of that 5%, which is an additional 2%. So now I'm going to be at $7.19. Right? No retailer sells anything for $7.19. Right? You have price points, 7.29, 7.59, 7.99, or whatever it is.

So in this case, likely the retailer is going to go to 7.29. So now I need 5% to cover my increase in pooling, but my shelf price just went from 6.59 to 7.29, which is a lot more than 5%, right? Now the consumer's saying, hey, this is an additional 10%, right? Now I'm paying significantly more money, you know, our initial 5%, now I'm paying additionally more money for this product. And now I get to that point, you know, it's not just -- it's just not worth it.

And maybe I go to organic. Maybe I go to conventional. Doubtful you go to conventional. But guess what? Organic's going up, too.

Now, from an elasticity standpoint -- because I love to talk about elasticity -- the question is, where does that consumer go? The consumer is not going to conventional milk, right? The consumer -- the consumer is already paying $6.69 for my value-added milk, and they are making that value decision. I want -- I want those benefits. I'm not happy with just commodity milk, I want those benefits, whether it be fa!rlife and more protein, or Lactaid with -- you know, with lactose-free, or A2, or -- or grass-fed organic in my case, or whatever it is, I want those benefits. I want something healthier. I want something that's better for the environment, something that makes me feel better about my purchase, and I'm willing to pay for it. But sorry, Maple Hill, I'm not willing to pay 7.29. What are my other choices?

You know what? There's oat milk over here that's also good for the environment, or at least they say they are. We'll debate that in a different hearing. But -- so -- so now you are just -- right? This is where the pooling starts to go down. Now I'm selling less milk. Right? Now that consumer is finding alternatives in the dairy industry. I don't just compete with -- with my dairy competitors. I'm competing with everyone in the dairy space, whether that be juice, plant-based beverages, Kombucha, whatever -- you know, whatever it is that the

customer is looking for.

I'm trying to get to that customer who is most interested in the nutrition -- the nutritional content of their beverage, and in my case, the regenerative aspects that that gives. Right? Better for the environment. It's 100% regenerative agriculture. That matters to a consumer and they are willing to pay for it. If they can't get it from me, they are going to go look for somebody else they can get it from, and that's not necessarily going to be in the milk market.

Q. And you sell at a fixed price to your buyers. And we have had discussion, a long time ago, at this hearing about the ability of buyers to hedge if they have a fixed price.

Do you know if your purchasers are able to use any risk management tools to lay off risk, since they know what the price is you are going to sell the milk to them?

A. Are you speaking to the retailer?

Q. Yes.

A. I don't believe any retailers hedge milk price.

Q. Okay.

MS. TAYLOR: That's it from AMS. Thank you for your time today.

THE WITNESS: Thank you.

THE COURT: Mr. English.

MR. ENGLISH: I have no further questions. I just on behalf of the witness move the admission of Exhibit 432. And I thank him for his time.

THE COURT: Is there any objection?

There is none. Exhibit 432, also known as Hau-001, is admitted into evidence.

(Thereafter, Exhibit Number 432 was received into evidence.)

THE COURT: And, Mr. Hau, I have no additional questions. Your testimony was excellent, and I thank you.

THE WITNESS: Thank you.

THE COURT: You may step down.

Now I'm looking at the two exhibits that we marked yesterday. These are Exhibit 433, also IDFA Exhibit 57, and Exhibit 434, IDFA Exhibit 58. I am watching as the witness comes to the witness stand.

MR. ROSENBAUM: Your Honor, those are not actually going to be the next exhibits. Those are Mr. Brown's exhibits, so we will be doing them, well, perhaps this afternoon depending upon how quickly things move.

But at this point I would like to call Dr. Balagtas to the witness stand.

THE COURT: Let's go off record for just a moment.

(An off-the-record discussion took place.)

THE COURT: All right. We're back on the record at 9:22. While the witness' testimony is being distributed and marked, we'll take a ten-minute break.

Mr. Rosenbaum, let's come back ready to go at 9:35.

MR. ROSENBAUM: Thank you, Your Honor.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 9:35.

And I have two exhibits that need a number, and I believe our next number is 435.

(Thereafter, Exhibit Number 435 was marked for identification.)

THE COURT: So will that be for the testimony, Mr. Rosenbaum?

MR. ROSENBAUM: Yes, Your Honor. It's Hearing -- it is IDFA Exhibit 61. That should be Hearing Exhibit 435.

THE COURT: Thank you. Then I will mark as 436, IDFA Exhibit 62.

(Thereafter, Exhibit Number 436 was marked for identification.)

THE COURT: I'd like the witness now to state and spell his name.

THE WITNESS: Joseph Balagtas, J-O-S-E-P-H, last name B-A-L-A-G-T-A-S.

THE COURT: Have you previously testified in this proceeding?

THE WITNESS: No, Your Honor.

THE COURT: Now, as we -- I'll swear you in, but as we go forward, we'll determine whether you need to scoot your chair a little closer to the mic or make any other adjustment as to how people can hear you.

First I'll swear you in.

//

JOSEPH V. BALAGTAS,

Being first duly sworn, was examined and testified as follows:

THE COURT: Mr. Rosenbaum.

DIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Good morning, Mr. Balagtas.

A. Good morning.

Q. You have before you two exhibits.

Is Hearing Exhibit 435 your written testimony today?

A. Yes, it is.

Q. And is Hearing Exhibit 436 a PowerPoint presentation that you have prepared to summarize and orally discuss that written testimony?

A. Yes, it is.

Q. All right. I would ask then that we have the PowerPoint presented on the screen, and let's go ahead and go to the second page, if we could, Dr. Balagtas, where you describe your background, and I will let you do that, please.

A. Thank you.

I am a professor of agricultural economics at Purdue University where I have been since -- on faculty since 2004. I am also the interim director for the Center for Food Demand Analysis and Sustainability, a position I have held since August this year.

I have three degrees: A bachelor's of economics

from Miami University; a master's of science in agricultural economics from Iowa State University; and a Ph.D. in agricultural economics from UC Davis.

In addition to my academic positions, I have also taken temporary leave from Purdue twice, once to serve as a Fulbright Senior Scholar at the International Rice Research Institute, and again to serve as a senior economist at the Council of Economic Advisors in the Executive Office of the President.

Q. And just what does the Council of Economic Advisors do?

A. It provides objective economic analysis to the President of the United States.

Q. Okay. Turn to the next page, please.

Tell us about that, please.

A. So in my professional work I conduct research. I also teach in the areas of -- in -- on the economics of agricultural and food markets, with a particular expertise in industrial organization. Industrial organization is the study of consumer behavior, competition, and public policy.

I have published dozens of research papers, peer reviewed general articles on U.S. and international agricultural food markets, including U.S. dairy markets and policy in Federal Milk Marketing Orders.

I have also garnered multiple awards for the quality of my research, and have attracted more than a million dollars in funding to conduct that research.

I have served and continue to serve on editorial boards for the top journals in my field, and relative -- relevant to this work in my current focus, current work with the Center for Food Demand Analysis and Sustainability, I focus my work -- I focus on consumer behavior in food markets.

Q. And what do you consider yourself an expert in, Dr. Balagtas?

A. I'm an expert in consumer behavior, competition, and public policy in agricultural and food markets.

MR. ROSENBAUM: Your Honor, I would ask that the witness be declared an expert in those four subject matter areas.

THE COURT: Tell me again? I want to make sure I got it right.

THE WITNESS: I'm an expert in consumer behavior, competition, and public policy in agricultural and food markets.

THE COURT: So I got three, Mr. Rosenbaum. You got four?

MR. ROSENBAUM: I think I'll go with the three, Your Honor.

THE COURT: Is there any objection to my accepting Dr. Balagtas as an expert in those three fields?

There is none.

Dr. Balagtas, I am so pleased that someone with your experience is here. I do recognize you as an expert in consumer behavior, competition, and public policy with

regard to agricultural and food markets. Did I express correctly your expertise?

THE WITNESS: Yes, Your Honor.

THE COURT: Thank you so much.

THE WITNESS: Thank you.

BY MR. ROSENBAUM:

Q. If we could move on to the next page of the PowerPoint presentation and tell us what you have done.

A. Yes. So I -- I have been hired by counsel for IDFA to evaluate the market effects of Proposal 19. I'm conducting this analysis as a private consultant, not as a representative of my employer.

Q. Please continue.

A. So first let me state my understanding of Proposal 19. It raises Class I differentials to an average of $4.07 per hundredweight. That's an average across counties. In the United States, it raises Class I differentials in every county, ranging from $2.20 per hundredweight in some counties in Idaho, to as much as $7.90 in parts of Florida.

Those proposed increases in Class I differentials average $1.50 -- excuse me -- average $1.50 increase over current Class I differentials, ranging from $0.25 per hundredweight increase to an increase of $2.70 per hundredweight.

Relative to the 2023 average Class I price of $19.20, that $1.50 increase represents a 7.8% increase in Class I price.

Q. Thank you, Dr. Balagtas.

And over the next three pages have you reproduced maps that were actually put into evidence already by the American Farm Bureau Federation that pictorially depict these changes?

A. Correct.

Q. Can you just march through it briefly as to what each page is.

A. So this is a map of current Class I differentials that show low prices in -- in surplus markets. And those -- excuse me -- low Class I differentials, and those increase as we move to the South and Southeast.

Q. And this is page 3 of the printed version of your PowerPoint presentation, page 6.

Can you go to the next page, please.

A. Here's Proposal 19's proposed Class I differentials. A little hard to tell from the colors, but the proposed differentials are higher.

If we go to the next map --

Q. That was page 7. Now we go to page 8 of the printed copy.

A. Here are, again, American Farm Bureau Federation's representation of the increase in the Class I differentials by county.

Q. And if we could go to the next page, tell us what specific questions you have addressed.

A. So I -- I do three things. One, I -- I look back at market conditions since 2000, the last time we had a

large revision in Class I differentials, and ask whether changes in market -- in the market since that time justify higher Class I differentials today.

I then think about if -- what would happen in markets if Class I higher -- if Proposal 19 were implemented. I first look at the fluid milk market: What would happen to fluid milk retail milk prices; what would happen to retail milk consumption; what would happen to Class I utilization; and what would happen to the economic well-being of fluid milk consumers.

Third, I look at what the implications of those effects in fluid milk markets are for the rest of dairy markets and also for the overall average farm price of milk, which I -- I take as sort of a representation as a the effect on dairy farmers.

Q. All right. Could you take us to your next slide, please.

A. So starting with that first question: Do changes on dairy markets since 2000 justify increases in Class I differentials?

And here, I think it's important to start with some -- some stylite tests, some data that explain what's happened since 2000.

Q. Just we're now looking at page 11 of the printed copy of --

A. And this chart shows U.S. milk production from -- every year from 2000 through 2022. Growth in milk production has averaged 1.8% annually over that time.

Today, or in 2022, we had 45% more milk produced in the country relative to 2000. So we have a lot more milk produced in the country.

Q. Okay. Now we're on slide 12.

A. At the same time, fluid milk consumption is falling. This is a chart from the Economic -- USDA's Economic Research Service, showing average per capita fluid milk consumption in the United States. It's dropped by about half, from approximately one cup per person per day in 1970 to half a cup per person per day in 2019, which was the latest year they had data for when this was published, I think in 2001, if I remember correctly.

So a big drop over that 50-year period, since over the last ten years of this data, fluid milk consumption dropped from .62 cups per person per day to .5 cups per -- .5 cups per person per day.

Q. Now you've pulled up slide 13.

A. This chart uses Federal Milk Marketing Orders statistics data to show quantities of milk -- of producer milk in Class I use in 2001 and 2022. The big -- the overarching story to tell here is that we are using an -- less milk in Class I uses today than we were 20 years ago. Over that time period, fluid milk use -- the quantity of fluid milk -- excuse me -- the quantity of farm milk in fluid uses has fallen by 11%, 10.7%.

Q. All right. Take us to the next slide, 14, please.

A. Yep. Worth noting, it's fallen also in every one of these nine regions that I show here.

Q. That's on slide 13?
A. Correct.
Q. Yes. Okay. And now slide 14, please.
A. This -- this table shows the percentage of pooled producer milk used in Class I for those same nine regions. That Class I utilization rate has fallen by 30% over this 20-year period, from 38% in 2001 to 27% currently. Across regions, across marketing order areas, it's fallen in six of these nine areas. Three marketing areas, the Appalachian, the Central and Southeast Orders, have shown increases in Class I utilization rates.
Q. All right. Page -- the next slide, please.
A. So I got ahead of myself there. So in six of the nine milk marketing order regions shown in those tables, Class I utilization rates have fallen since 2001.

I take that as evidence that in these regions there is adequate supply of milk for fluid uses. Presuming that in 2000 when we last made large revisions, we made those revisions to ensure adequate supply of milk for fluid uses. Now we have more milk, less fluid consumption in those regions. So I take that to mean that there's -- there's plenty of milk for fluid uses there.

In three of those nine regions, Class I utilization rates have risen and -- since 2001, and that suggests potential for market -- that marketing conditions in -- have changed in the -- in a way that supply is inadequate for fluid uses. So I looked at additional data to evaluate this question for those three regions.

Q. Okay. Are we now on slide 16?

A. Yes. So first I look at the annual utilization rates could mask over some inter-annual variation. In particular, in the fall, milk production's down, kids are back in school, utilization rates are high. And so what I do here -- and so Class I utilization rates are particularly high in -- in those months.

Here I take for each year the peak monthly Class I utilization rate for each of these years, and I look at what's happened to peak monthly Class I utilization rates over time. And if they were trending higher, I -- I would worry that there there's a growing problem of inadequate supply of milk in those regions. And the fact is there's no trend in this data, and the peak Class I utilization rates in these three regions has been fairly steady over time.

Next I look at prices as an economist. We -- prices would -- would -- we look at prices to indicate inadequate supply. So there's -- lack of supply would -- would show high prices, would manifest in high prices. So I take Federal Milk Marketing Order data. They collect data on 30 cities and report retail milk prices in 30 cities in Federal Milk Marketing Order areas.

And I look at retail prices in cities in those three regions, the three high Class I utilization rate regions: Atlanta, Georgia in the Southeast; Louisville in Appalachian Milk Marketing Order; and Miami, Florida, in Florida. And I compare the retail -- average annual

retail prices in those -- of milk in those three cities to prices in the rest of the country.

If you look at Atlanta, you have Class I -- or excuse me -- retail prices in 2019 that's $3.56 per gallon, slightly -- or higher than the 30-city average, lower than the 75th percentile price in that sample.

For the remaining for 2020, 2021, 2022 -- and 2022, Atlanta's retail milk price is below the 30-city average. It's higher, again, than the city average in 2023, but lower than the 75th percentile.

In -- in Louisville, retail prices of milk are below the 30-city average in all five years, these five recent years.

In Miami, Florida, we have retail prices of milk that are above the 75th percentile in 2019, and below the 75th percentile for the remaining -- for the most recent four years for which we have data.

This suggests to me that high Class I utilization rates in these regions are not causing high retail prices of milk in these regions, which suggests to me that there's not a problem of inadequate supply of milk in the Southeast, in Appalachian, in Florida.

Q. Now we're on slide 18.

A. Let me summarize: Higher Class I differentials are not justified in my view on the basis of inadequate supply of milk for fluid uses. There's growing milk production nationally and in most regions. There's declining milk consumption everywhere, that means less

Class I milk, and in most regions Class I -- lower Class I utilization.

There is -- there are -- this is a typo. It shouldn't say rising Class I utilization rates -- well, yeah. No, that's correct. There are rising and relatively high Class I utilization rates in Appalachia, Central, and Southeast Marketing Orders, but utilization rates have -- have peaked. Monthly utilization rates have not risen since 2000, and higher utilization rates have not caused high retail milk prices.

Q. For that first bullet, should we insert the word words "peak"?

A. The first sub bullet on the third big bullet, where it says "utilization rates have not risen," that is a typo or an error of omission. It should say "peak monthly utilization rates."

THE COURT: Hold on just a minute. I'd like to make that change on the record copy. I want you to, again, say what you did, and I'm going to ask the Agricultural Marketing Service to note this.

We are in Exhibit 436 on page 18, and the third bullet point has two subcategories. We're going to the first subcategory, which is also a bullet point, and I'd like, Doctor, for you to tell us how that should be changed on the record copy.

THE WITNESS: Yes. The bullet point that currently reads, "Utilization rates have not risen since 2000," should instead read, "Peak monthly utilization

rates have not risen since 2000."

THE COURT: Done. Thank you.

THE WITNESS: You're welcome.

BY MR. ROSENBAUM:

Q. If you could please continue with your next slide and your presentation. This would be slide 19.

A. So next I turn to the effect of that higher Class I differentials, Proposal 19, would have in the market for fluid milk.

Demand -- higher Class I prices would cause higher retail prices for fluid milk products. Consumers respond to higher prices by reducing consumption, an effect which we quantify -- economists quantify by the own-price elasticity of demand for milk, which I define here as the percentage change in quantity consumed for a given percentage change in the price.

Proposal 19 would contribute to declining milk consumption, and the magnitude of this effect depends on this elasticity of demand for milk.

Q. All right. Next page, please, page 20.

A. So this elasticity of demand for milk, we have talked a lot about it in the couple of days that I have been here, is -- is a crucial parameter. And we want to know how consumers will respond to higher retail milk prices. And not just any consumers, we want to know how consumers will respond -- how the consumers who live through the higher milk prices will respond to that. So if that happens in 2025, how will consumers in 2025

respond to higher milk prices?

We don't know exactly what that will look like, but we could draw estimates using data, historical data, all this historical data, to think about what that response would be. In fact, there's large literature in my field that tries to estimate agricul- -- demand for fluid milk, dating back some 60 years.

The typical finding in that literature is that demand is inelastic. Inelastic means an elasticity less than 1.0 in absolute value, between zero and minus one, meaning consumers reduce consumption less than proportional -- less than proportionately in response to higher prices.

Q. All right.

A. That implies Federal Milk Marketing Orders increase farm revenue of milk. If demand for Class I milk is inelastic, a higher price causes an increase in revenue.

As I said, we need an elasticity of demand that captures behavior of consumers in current and actually in future markets. Studies using data from the middle of the 20th century or late 20th century likely do not capture relevant behavior or market conditions. Data from the 1960s or the 1980s don't reflect the choices that consumers face in the marketplace. They don't reflect how -- where or how consumers shop. And so I would be hesitant to use that data to reflect -- to estimate a parameter that we want to reflect consumer behavior now or

in the near future.

And in particular, there's been growth in competition in the retail space for fluid milk. In particular, in the last several years, call it eight or ten years, growth of non-dairy substitutes.

Mintel Group estimated that non-dairy milk accounted for 17% of all quote/unquote "milk sales" in 2022; now is up 67% from 2017. So it's a large percent -- large and growing percentage of the quote/unquote "dairy aisle" is non-dairy milk.

Son and Lusk using Nielsen data found non-dairy share of milk expenditure a little bit lower. That's 13% in 2002 -- 2022, excuse me.

Q. Next slide, page 22.

A. The growing availability of substitutes makes demand more elastic. The main driver of consumer response to higher prices is the sub- -- is what economists call the substitution effect. When there are close substitutes for a good, consumers respond to higher prices of that good by switching to the close substitute.

Thus, when the presence of more sub- -- when there's -- when there are more substitutes in the market, there is greater consumer response to higher prices, in other words, more elastic demand. Growing competition within the dairy aisle and across the beverage category means the demand for milk is likely more elastic today than it was even ten years ago.

Demand studies -- because of that, demand studies

using data that do not capture these market realities are not relevant for analyzing Proposal 19, which would be implemented in current or near future market conditions.

THE COURT: Do you want us to add those words on the record copy, "current or near future"?

THE WITNESS: I think "current" communicates the idea appropriately.

THE COURT: Thank you.

BY MR. ROSENBAUM:

Q. All right. Next page, page 23.

A. So what do recent milk demand studies find? And I'm a little sloppy here, I don't necessarily mean recently published. All right? The timing of the publication of the study isn't as important as the timing of the data used in those studies.

So each of the studies used here use relatively recent data, from dating back to 2015 or 2017 depending on the study. So those data better reflect modern market conditions, and so I picked these three as representative of analysis using this type of -- this more recent data.

What do they find? Professor Judd Capps -- Oral Capps, Jr., estimates using IRI or Circana data, a milk demand elasticity of minus 1.26. That's his estimate for all milk, all fluid milk in the most recent period in his study, what he called the post or moving -- moving-out-of-COVID period, I believe it was.

THE COURT: And although we have Dr. Capps' data and exhibits, would you spell the sources of his

information so that we'll have it correct here? IRI, you said.

THE WITNESS: Capps uses data from Circana. It's C-I-R-C-A-N-A.

THE COURT: All right. I thought you had indicated two words that I wanted to make sure we captured.

THE WITNESS: I think I made might have said IRI, which was the previous name of Circana before it merged with another company and changed names.

THE COURT: That was it. Thank you.

THE WITNESS: A study by Ghazaryan, et al., found milk demand elasticity with values between minus 1.3 and minus 1.7, using scanner data. And I don't recall off the top of my head if it's Nielsen or Circana data.

Son and Lusk analyze using Nielsen data, demand for fluid milk, in this context of -- with non-dairy substitutes, and found milk demand elasticity of minus 0.946.

BY MR. ROSENBAUM:

Q. Next slide, slide 24.

A. So what does that mean, compared to the previous literature, and Professor Kaiser found a median elasticity of minus 0.196, compared to that previous literature, recent work suggests demand in current markets is more elastic.

So that means Proposal 19 would be implemented in a market where milk consumers will be more responsive, and

the proposal would reduce milk consumption by more than what is suggested by previous estimates. Proposal 19 would make a bigger contribution to declining milk consumption than is suggested by previous estimates, and Proposal 19 has bigger implications for manufacturing class milk than is proposed -- than is suggested by previous estimates of the fluid milk demand elasticity. And that's a subject I'll turn to next in a minute.

Q. All right. Slide 25 then, please.

A. So using recent elasticity estimates, I look at the effect of Proposal 19 on fluid milk consumption. As I stated in one of my earlier slides, I calculate that Proposal 19 raises Class I prices by 8.7%, using a price transmission -- transmission elasticity of 0.55 from Professor Kaiser. That 8.7% increase in Class I prices translates to a 4.3% increase in retail milk prices.

Applying Professor Capps, Jr.'s demand elasticity of minus 1.6 -- 1.26, excuse me, that 4.3% increase in retail price translates to a 5.4% reduction in consumption of fluid products.

THE COURT: And those fluid products you are referencing in this third bullet point are fluid milk products?

THE WITNESS: Correct.

THE COURT: Okay.

MR. ROSENBAUM: Okay.

BY MR. ROSENBAUM:

Q. Next slide, please.

A. Those higher prices harm fluid milk consumers. By causing higher retail prices, Proposal 19 makes consumers worse off. As a measure of that cost to consumers, I use the change in consumer surplus, which is approximately equal to the change in consumer expenditure on milk.

Q. Is that an economic concept, consumer surplus?

A. Yes, it is a standard economic concept used to measure consumer well-being in markets. Yes. So the idea is if I have to pay a higher price for any given item, the additional price I pay is money out of my pocket. That's a cost to me.

If I use Capps, Jr.'s Circana data, which showed a price of $4.95 per gallon and 56.9 million gallons per week purchased by consumers, harm to consumers would be $11.8 million per week. That's just taking that retail price increase that we calculated, applying it to the consumer's expenditure in his data.

If I further assume that that price increase and Capps' data, applied to the 12% of untracked retail purchases, that is retail purchases not tracked by Circana, then harm to consumers is $14 million per week.

If I further assume that Professor Capps' data and -- applies to the 24% of milk volume that is sold in foodservice, I get a harm to consumers, a loss in consumer surplus of $18.4 million per week.

Q. Dr. Balagtas, looking at this now, should we be adding the word "and schools" after "food service" to get up to the 24%?

A. I'm including schools and foodservice, yes.
Q. Thank you.
THE COURT: Then let's do -- add the "schools" just to make it perfectly clear. This is Exhibit 436, page 26. How would you like it to read? Would you like it to say after foodservice, parentheses, "including schools"?
THE WITNESS: That would be accurate.
THE COURT: All right. Let's do that. So we're just inserting "including schools" in that last bullet point. That is closing the parentheses just before the 24%.
All right. Done. Thank you.
THE WITNESS: Your Honor, can I ask a question? I didn't start my timer. Can you give me a sense of time?
MS. TAYLOR: 22 minutes --
THE WITNESS: 22 minutes?
MS. TAYLOR: -- you have left.
BY MR. ROSENBAUM:
Q. We're doing fine, Dr. Balagtas. Take us on to the next slide, please.
A. So in addition to -- where as a consequence of reducing Class I milk consumption, Proposal 19 will redirect farmers' milk, producer milk to manufacturing. By -- that increased supply of milk to manufacturing uses -- excuse me -- results in -- there's a typo there -- increased production of manufactured dairy products, reduced prices for those dairy commodities, and lower

prices of milk components because milk components on -- are priced on dairy commodity prices.

And next I turn to quantify these effects.

THE COURT: Before you go there, on page 27 of Exhibit 436, do we just strike the word "uses"?

THE WITNESS: Yes, Your Honor.

THE COURT: All right. Do you see it there? Just after manufacturing, we strike the word "uses." Thank you.

THE WITNESS: And I want to clarify here what I'm trying to do. I am trying to quantify what it means to divert this quantity of milk to manufacturing uses, and that exercise depends on some elasticities. Again, we're going to get back to elasticities, different ones this time, but there's uncertainty in my mind about what the value of those elasticities are.

So I -- what I tried to do is provide a range of plausible elasticities. I think that range is wide because, to my knowledge, those -- there are not publicly available published studies that -- that report such elasticities. So I tried to be fair and to give you a sense of the range of possible effects in the manufactured dairy product market.

BY MR. ROSENBAUM:

Q. And just to orient ourselves before you get into the numbers. You, in your analysis, suggested that an 8.7% increase in Class I prices would translate to 5.4% reduction in consumption of flood products, correct?

A. Correct.

Q. And obviously then farmers are not being paid a Class I price on that milk that's no longer being sold to Class I, correct?

A. Correct. That's milk that gets diverted to, for example, butter and powder production and gets priced in Class IV.

Q. So one way of conceptualizing it for a non-expert like me is you start out with 8.7% more money through the Class I increase, but you lose 5.4 percentage points, roughly, through the decline in sales?

A. So you get a lower price on -- on that milk that's diverted from Class I to Class IV. In addition, because we produce -- because we increase production of, for example, butter and powder, lower prices of butter -- of butter and nonfat dry milk cause the whole structure of Federal Milk Marketing Order prices to also decline.

Q. So please continue.

A. So we start with this 5.4% reduction in Class I milk, in 2022, using Federal Milk Marketing Order statistics data. Class I -- producer milk used in Class I was 41 billion pounds, so 5.4% of that is 2.2 billion pounds.

Where will that milk get absorbed? For the purposes of this exercise, I assume all of that 2.2 billion pounds goes into Class IV. 2.2 billion pounds translates to -- of -- of farmer milk, translates to 200 million pounds of nonfat dry milk production. That's

a 7.6% increase, again, using 2022 data. And it -- that 2.2 billion pounds also would produce -- of milk would produce 62.9 million pounds of butter. That's a 3.1% increase in U.S. butter production.

By the way, my Excel spreadsheet has all of this done so that it's transparent, we can see how I calculate these changes.

Q. Okay. And the hard copy of that is attached as the last two pages of Exhibit 435; is that correct?

A. Exhibit 435.

Q. Yes.

A. Correct.

Q. Okay.

THE COURT: Now, on this bullet point, you said, 200 million pounds, and your slide says 201 million pounds.

THE WITNESS: I'm being sloppy, Your Honor. It's 201 million pounds, additional pounds of nonfat dry milk, correct.

THE COURT: Thank you.

THE WITNESS: So the question then is, what are the effects of that increased production of nonfat dry milk and butter on commodity prices? That depends on demand elasticities, demand for U.S. nonfat dry milk, demand for U.S. butter. Right?

In the absence of relevant demand elasticities, estimates of those elasticities, I report effects for a wide range of elasticity values.

BY MR. ROSENBAUM:

Q. And if we go on to page 29.

A. I believe this is Table 5 in my -- in Exhibit 435.

And here what I do is take that increase in -- those increased -- that increased production of butter and powder, apply elasticities for -- demand elasticities for butter and powder, and for those -- for each set of elasticities, I calculate a change in the nonfat dry milk price and the change in the butter price. And then I work through the Federal Milk Marketing Order pricing formula to get price -- price changes in the skim price and butterfat price and therefore changes in the all-milk price.

I look at three scenarios in this table. On the left is a more inelastic scenario with a demand for -- for U.S. nonfat dry milk an elasticity of demand for U.S. nonfat dry milk of minus 4, and a demand -- an elasticity of demand for U.S. butter of minus .25.

In all of these, the elasticity of demand for U.S. nonfat dry milk is significantly more elastic than that for butter. Because nonfat dry milk is traded, right, so we're -- that -- that's going -- that production trades in a global market. I think some large percent, 70-ish percent, of nonfat -- U.S. nonfat dry milk is exported, and so it's a smaller portion of world production, demand's going to be more elastic.

THE COURT: "Demand is going to be more"?

THE WITNESS: More elastic for nonfat dry milk.

So what we find is comparing across scenarios, in the more inelastic scenarios, we find larger prices of increased production of dairy commodities, larger drops in those dairy commodity prices, a one -- a minus 1.9% reduction in the nonfat dry milk price -- excuse me -- a 1.9% reduction in the nonfat dry milk price and a 12.23% reduction in the butter price.

Those translate, again, through the Federal Milk Marketing Order pricing formulas to a $0.20 per pound reduction in the skim price and a $0.385 per pound reduction in the butterfat price. Again, all of this done in my Excel spreadsheet.

Those reductions in skim and butterfat result in a $0.28 reduction in the all-milk price. That $0.28 reduction in the all-milk price includes increased Class I revenue from higher Class I differentials. That is to say, in this inelastic -- more inelastic scenario, the net effect of the Proposal 19 on dairy farmers would be to reduce the all-milk price, make farmers worse off.

When we move to the more elastic scenario, increased production of dairy commodities has a smaller effect on commodity prices, therefore, a smaller effect on component prices, and a smaller effect on the all-milk price. In that case, this is the far right column, in that more elastic world, Proposal 19 would raise the all-milk price by $0.12 per hundredweight. And then the middle column shows a middle scenario.

I present this range of scenarios to show -- to

reflect the uncertainty of the effect of this on -- of the net effect of this proposal on farmers. We have increased Class I revenue. We have decreased manufacturing milk revenue. And the sign of that sum is maybe positive or negative depending on elasticities of demand that I've identified in my -- in my analysis.

Moreover, what I think are modest effects, relatively small effects of -- on the all-milk price, right, in my middle -- backing up one slide -- in my middle scenario, we have a $0.03 per hundredweight change in the all-milk price. So let's call that a modest effect on the all-milk price, although it is real money for farmers, I understand. That modest effect masks big changes within the sector. There's big harm to fluid milk consumers, as I calculated, and there's a disruption to the manufacturing milk market. The relative size of which -- or the implications of which, again, depends on these demand elasticities.

And with that, I end my presentation.

MR. ROSENBAUM: Your Honor, the witness is available for cross-examination.

MS. TAYLOR: Your Honor, I hate to interrupt, but might I suggest a morning break, and then we might be able to continue to lunch and not interrupt anyone's cross?

THE COURT: I think that's a great idea. Is that okay? And it will also allow the witness to move about, maybe get a little sunshine. I'm sure, yes. There's a lot of work still to be done.

Please be back and ready to go at 10:45. We go off record at 10:29.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 10:47.

MS. HANCOCK: Thank you, Your Honor.

CROSS-EXAMINATION

BY MS. HANCOCK:

Q. Nicole Hancock for the National Milk Producers Foundation.

Good morning, Dr. Balagtas. Thank you for being here today.

A. Good morning.

Q. It is not a long commute for you, is it?

A. No, I'm local.

Q. You don't get to hear that much here.

I'm wondering if you can start off, I'm just going to maybe go in chronological order in your exhibits, 436.

You started off by talking about your background. I'm wondering if you can share a little bit more detail about your background in the dairy industry in particular.

A. So I haven't been in the dairy industry. I have been in academia all my life. I have done research on dairy, starting with my Ph.D. dissertation was on Federal Milk Marketing Orders.

During that time, while I was a grad student at Davis, I wrote a couple other papers, just off the top of my head remembering, related to -- one related to dairy

trade, another related to the New England Compact. So I -- I had written a few papers, academic papers on the economics of dairy markets. At Purdue, I continued to do some work in dairy. I have written several papers in -- on the subject. And continue to have -- don't currently have any active work that -- I think that's correct -- related to dairy other than this, but continue an interest and follow the research and literature on the topic.

Q. Prior to your engagement by IDFA -- and that began in August of this year?

A. Correct.

Q. Prior to your engagement by IDFA to provide your testimony today, when is the last time that you wrote about the dairy industry or did any kind of analysis of the dairy industry?

A. I don't recall off the top of my head. I'm not sure. I'd have to look at my list of papers and to think about that.

Q. Has it been some time?

A. That I have published on the dairy industry? I believe so. Again, I'd have to look at my CV.

Q. And have you been involved in conducting any studies yourself with respect to the dairy industry?

A. No, not recently.

Q. When is the last time?

A. I want to say maybe ten years ago. I have done some work, but it has been a few years.

Q. What was the study that you did?

A. Again, I don't recall off the top of my head. If I could pull up a CV, I -- or we could look at papers I have written.

Q. Okay.

THE COURT: Do you have it in your laptop?

THE WITNESS: Or I could pull up Google Scholar.

THE COURT: Would you like that information, Ms. Hancock? We can do that.

MS. HANCOCK: Sure.

THE COURT: We learned about a new thing, Google Scholar.

THE WITNESS: So if I sort these by -- if I can sort these by date.

The last dairy-related work -- I was thinking fluid milk, but I did have some work on ice cream package sizes in the retail space: One published 2021, another published 2014.

BY MS. HANCOCK:

Q. What was the 2014 article?

A. "Consumer Response to Packaged Downsizing: Evidence From the Chicago Ice Cream Market."

Q. So related to your ice cream packaging?

A. Correct.

Q. What about Federal Orders in particular, ever do any studies specific to the Federal Order system?

A. Yes. I think the most recent work that involved Federal Orders would have been published in 2012.

Q. 2012?

THE COURT: 2012?
THE WITNESS: 2012, Your Honor.
THE COURT: Oh, 2012. Thank you both.
BY MS. HANCOCK:
Q. What was the subject of that article, do you recall?
A. That was Competition and Market Power in Fluid Milk -- U.S. Fluid Milk Supply Chains.
Q. And I think we have a copy to look at. I think we have handed that out and e-mailed that to everyone.
MS. HANCOCK: Your Honor, if we could have the next exhibit number.
THE COURT: Thank you. All right. I have been handed, Ms. Hancock, my copy of Exhibit 437, also shown as Exhibit NMPF-110.
(Thereafter, Exhibit Number 437 was marked for identification.)
MS. HANCOCK: Your Honor, I missed the NMPF number.
THE COURT: It's 110.
MS. HANCOCK: You are providing it to me. It should be the other way around. My copy didn't have it, so thank you for that.
THE COURT: I have a black and white 110, freshly minted.
BY MS. HANCOCK:
Q. Dr. Balagtas, is Exhibit 437 a copy of the last article that you ever -- that you conducted a study on

related to the Federal Order system?
A. I believe that's correct.
Q. And this was done in 2012?
A. It was published in 2012, correct.
Q. And since this time you haven't done any studies related to the Federal Order system?
A. I have not published anything since this time that I could recall on Federal Orders or related -- or work related to Federal Orders.
Q. Okay. Since this time have you conducted any studies that haven't been published related to the Federal Order system?
A. That, I'm not sure of. There -- the way I -- we, in academia, do research, have lots of projects going on. But not that I recall.
Q. Okay. Fair to say that as you sit here today not that you can think of?
A. Yes. Correct.
Q. And is it also fair to say that you have not conducted any separate analysis or modeling related to the Federal Order system?
A. Ever? Or since 2012, since this?
Q. Well, have you ever conducted any modeling of the Federal Order pricing system?
A. Economic modeling of the Federal Order -- of Milk Marketing Orders, I have, yes.
Q. When did you do that?
A. My -- there's a paper published in 2007 that

models Milk Marketing Orders. The paper I referred to with the Northeast Dairy Compact, we analyzed the compact on top of Federal Order structure, which is in -- also in the model. So it's not accurate to say I have never modeled Federal Milk Marketing Orders.

Q. Okay. So since 2007, have you done any modeling or analysis of the Federal Order system?

A. In the paper that you have handed me, published in 2012, analyzes milk markets, including Federal Milk Marketing Orders.

Q. Okay. I was considering that to be a study, and maybe my question was separate from that. I was asking about in addition to the study, if you had done any actual modeling work?

A. I'm not sure I understand the distinction between a study and modeling work.

Q. Okay. I thought you were distinguishing it --

A. Oh.

Q. -- so maybe that's why I was maybe confusing what I -- what I was asking you.

So other than the 2007 modeling work that you did and the analysis that you did in Exhibit 437, nothing else that you can think of?

A. Not that I can think of.

Q. Okay. And in Exhibit 437, you were looking at the competitive nature of cooperatives specifically in the fluid milk market; is that right?

A. Correct.

Q. And it's fair to say that you were somewhat critical of what the cooperatives' ability in the -- to sell products and the influence in selling fluid milk products in the market; is that right?

A. No, I don't think I made a judgment of the cooperatives in the paper.

Q. If you look at -- let's look at page 1 of Exhibit 437. So this is the first page of the article.

And in that first column, you say, "One of the stated goals" -- I'm about halfway through that -- or maybe a little over halfway into that first paragraph. Do you see the sentence that starts off with "one"?

A. I do.

Q. And you are talking about the 1937 Agricultural Marketing Agreement Act. And you say, "One of the stated goals of each of these policies is higher milk prices for dairy farmers."

Do you see that?

A. I do.

Q. Is that still your understanding today, that that's one of the stated goals for the Federal Order system?

A. I think the wording is fair pricing and not higher pricing, so that this -- the wording of marketing order stated goals I think is fair pricing for dairy farmers, which I interpret as higher prices for dairy farmers, yes.

Q. Okay. So that still accurately captures your understanding of the goals of the Federal Order system

today?

A. Yes. I don't think dairy farmers would want milk Marketing Orders that lower their price.

Q. And the -- you wrote this some time prior to April of 2012 when it was published?

A. Can you repeat the question, please?

Q. Sure. You wrote this article some time prior to April of 2012 when it was published?

A. Correct.

Q. And you understand that price differentials that we're talking about here at this national hearing have not been adjusted since prior to the time that this article was written?

A. I understand -- I'm sorry. Can you repeat?

Q. Yeah. You understand that the price differentials that we're here talking about for the national -- at this national hearing have not been adjusted or updated since prior to the time that this article was written?

A. I understand that, yes. I think there was some revisions, minor revisions in 2008. But, yeah.

Q. For a select region, right?

A. Correct.

Q. Not at the national level that we're talking about here?

A. I -- I do understand that.

Q. And at some point when you were talking, you said, we haven't updated -- we haven't updated this since 2000.

Do you recall that? You just --

A. I do recall that, yes.
Q. When you said, we haven't updated it, I made a note here to ask you about whether you had any role in the Federal Order Reform?
A. No. I meant we, the people. Yeah, I'm sorry. The very grand we, not I.
Q. We have a lot of people who were involved, so I just wanted to make sure we were clear on that.
A. I'm sorry. I did not have any role in that.
Q. Okay. Let's look at -- it says page 648, which must be the page of the article, but it is the second page of the article.
A. Yes.
Q. There's some industry background there I want to ask about on that -- so I'm on the second column on the right-hand side. The last sentence of the first paragraph there says: "Marketing orders have three key effects."
And the first bullet point you have there is "price discrimination." And you state: "Minimum processor prices are set such that fluid milk plants pay a higher price for farm milk than do other types of dairy processors."
Do you see that?
A. Yes, I do.
Q. And is price discrimination your word as the author?
A. I wrote those words, correct. And it -- yes. Those are words that I wrote.

Q. Do you believe that one of the effects of the marketing order is that it creates price discrimination for fluid milk?

A. I believe Class I differentials raise fluid milk prices, Class I prices, relative to manufacturing uses, which I -- which is the definition of price discrimination.

Q. Do you understand that one of the purposes of the Federal Order system is that dairy farmers get paid a uniform price without regard to the end use of that milk?

A. I do understand that, correct.

Q. So when you say "price discrimination," are you talking about it discriminates the price between and among handlers?

A. No, it discriminates on end user. I do understand, if you look at the next -- second bullet below, "revenue pooling," that has to do with paying a uniform price to farmers. Price discrimination based on end use is a part of Class I differentials -- is a part of Federal Milk Marketing Orders pricing.

Q. So when you say "end users," do you mean the customers of -- ultimately the consumers of those products?

A. Fluid milk plants versus, for example, a butter powder plant.

Q. Okay. Meaning the different classes of -- pay different prices?

A. Correct.

Q. And that is what you believe is price discrimination?

A. Yes. Price discrimination is a term used in the literature -- the economic literature on Milk Marketing Orders before this paper and continues to be I believe used.

Q. Okay. Let's turn to page 657 of the article.

A. 6?

Q. 657.

A. Yeah.

Q. And this is under your conclusion.

A. Okay.

Q. And I want to go to the last sentence on the first column on the left, under "Conclusion," and it starts off with "a key finding."

A. I'm there.

Q. And you state that: "A key finding is that while the estimated conduct parameter for dairy cooperatives is small (e.g., .0027 for the Northeast region), the fact that the derived demand for milk facing cooperatives is very inelastic allows cooperatives to exact markups of approximately 9%."

Do you see that?

A. I do.

Q. So in one of the conclusions that you reached is that demand, at least at this time period, for fluid milk is that it was very inelastic; is that correct?

A. Derived demand for milk facing cooperatives is

very inelastic, correct.

Q. Okay. Do you remember what the inelasticity measure was at this time?

A. I don't. We can look. I think it ranged across the marketing order regions and was inelastic for all of those. But it is inelastic, so between zero and minus one for all of those.

Q. Minus 1.0?

A. Between minus 1.0 and zero.

Q. Okay. And -- and then you go on to say, "The resulting estimate of annual income transfer from milk buyers to dairy farmers, in the regions subject to Federal Milk Marketing Order regulations, is approximately $636 million, with a mass away from zero. Retail demand for fluid milk is also quite inelastic."

Do you see that?

A. I do.

Q. Do you -- did you measure retail demand separately from the derived demand?

A. I estimate -- we estimate those simultaneously in this -- in this study.

Q. Was it the same number?

A. No.

Q. What was the difference between the derived demand for fluid milk and the retail demand elasticities?

A. I don't recall I -- in general, derived demand -- for derived demand for the upstream product, in this case farmers' milk, would tend to be more inelastic than the

retail demand.

Q. Okay. So --

A. As a general rule.

Q. So the retail demand you -- you qualify by "quite inelastic."

Can you give me what range you would conclude would be quite inelastic?

A. Close to zero.

Q. Or something less than zero?

A. All of the elasticities are less than zero. "Quite elastic" would be less than zero -- negative and close to zero.

Q. Okay.

A. So negative .05, for example, I would say is quite inelastic.

Q. Okay. So if we were looking at a scale, quite -- the retail demand would be somewhere between zero and negative .05, and the derived demand for fluid milk would be somewhere between zero and negative -- or .1 -- or negative 1, negative 1.0?

A. I'm sorry. Can you repeat that?

Q. Yeah. I just want to make sure we're clear on this.

So retail demand elasticity that you concluded in this article was somewhere between zero and negative .05?

A. Can we look at the results?

Q. Sure. Is that on 654?

A. 655.

Q. Okay. What's the range that you have there?
A. So for the Northeast, I'm looking at the top -- top number in the left column. That's retail demand of minus 0.0445.
Q. Okay. And so you are looking at Table 3. And you break it down by region; is that right?
A. Yep.
Q. And all of those regions show that retail prices are inelastic?
A. Not retail prices. Retail demand.
Q. Okay. Retail demand is inelastic?
A. Correct.
Q. Okay. And after this article was written have you done any further analysis since this time on the elasticities?
A. Have I estimated demand elasticity for fluid milk since this time? I have not.
Q. And the work that you did on behalf of IDFA, you took the conclusions that were already in the record to draw your conclusions for your presentation today; is that right?
A. Can you repeat that question?
Q. Sure. The work that you did in Exhibit 436, your presentation, your PowerPoint presentation that you provided, you were analyzing the elasticity analysis that was already performed by Dr. Capps for IDFA; is that right?
A. I used -- yes. I used that estimate.

Q. Okay. You didn't do any of your own independent analysis or modeling work; is that right?
A. Correct.
Q. Okay. And to the extent that your conclusions are based on his information, you would agree then that it would also be true that your conclusions would be different if you used Dr. Kaiser's elasticity results?
A. Correct.
Q. If we turn to -- I want to look at your page 436 -- or Exhibit 436, page 3.
A. Page 3.
Q. You talked about some funding to conduct research.
Is this for your work at Purdue, the funding that you received here?
A. Which bullet?
Q. It just says "greater than" --
A. Funding for research, correct. Yes, that's work con- -- funded research conducted at Purdue, yes.
Q. Okay. Is any of that research that you have been funded at Purdue related to the dairy industry?
A. I don't recall.
Q. And --
A. I have been funded to do work for the dairy industry -- not for the dairy industry, research of dairy markets. Some of that dates back to my time at the University of California. I don't recall if it spilled over into -- if it came with me to Purdue or if I had new grants at -- at the time at Purdue. But if I did, it's

been some time.

Q. Okay. Fair to say not as you recall as you sit here today?

A. Yep.

Q. Okay. And the work that you are doing as an expert witness today, that's not through Purdue, is it?

A. No, it is not.

Q. You have been hired separately by IDFA to perform this -- or to provide this expert opinion?

A. I have.

Q. And how much have you been paid for that service?

A. I will be paid about approximately $37,000.

Q. Okay. I want to turn to page 12 of your PowerPoint presentation, Exhibit 436.

And you're here on this page 12 talking -- or showing a bar chart showing the decline in fluid milk consumption; is that accurate?

A. It is accurate.

Q. And it's fair to say that fluid milk consumption in the U.S. has been declining since 1970 according to this bar chart?

A. Correct.

Q. And in any of your work that you have done, have you attempted to identify the reasons why consumers are consuming less fluid milk than they did previously?

A. I have not evaluated that question, no.

Q. Have you done anything to draw any conclusions about whether that correlates to the prices of those fluid

milk prices?

A. I have not done any work on that question, no.

Q. Have you looked at, even just recently -- for example, do you know that last year milk prices hit -- well, strike that. Let me say that again.

Are you aware that last year in 2022 that Class I milk prices hit a peak?

A. I'm -- I'm aware that Class I prices were high last year. I don't know if they were a peak or how you define that. But, yes.

Q. Or a historical high maybe i a better way to say it?

A. I understand Class I prices were high last year, yes.

Q. Do you know what they were?

A. I don't know. I think it was 20 -- I don't know off the top of my head.

Q. Do you know what -- if there was a corresponding effect at the retail level, either in the prices set by retailers or in consumer buying behavior, when those prices were high?

A. I do not. But those high prices occurred not in isolation. High Class I prices did not occur in isolation, right? So really hard to say without careful analysis what the effect of those high prices last year were on consumption.

Q. So when you say those prices didn't -- high prices didn't occur "in isolation," do you mean overall the

inflation rates have gone up and the cost of lots of products have increased?

A. I mean, the elasticity, yes. The elasticity of demand that we're all talking about measures the effect of a price change on consumption, assuming nothing else happens. Right? That assumption that nothing else happened last year would be a bad assumption.

So I -- I wouldn't want to attribute changes in consumption in the last year to changes in high prices without carefully considering changes in lots of other things, including general inflation, higher prices of other food products, changes in the macro economy, et cetera.

Q. Because all of those other factors also play into a consumer's buying decision about whether they are willing to pay a higher price for any one given product; is that accurate?

A. That's correct. I also have a correction. I -- I did think about, have thought about, the role of prices on fluid milk consumption recently. And I reviewed a study by my colleagues at the Center for Food Demand Analysis who surveyed 1200 consumers. And I cite this in my study. And the study was about alternative milks.

And they found a large portion of the respondents never had tried alternative milks. And they asked those respondents, if prices were the same, so they were asking about how -- how would you -- would you be more willing to try those products, those alternative milks, if prices

were the same, in other words, if dairy milk prices were higher.

And I don't remember off the top of my head. It's cited in my testimony. A large portion said correct. A large portion of those tended to be younger generations.

So I think price does affect, influence consumers' behavior. All these estimates that we have cited, including those by Dr. Kaiser, suggests prices do, in fact, affects consumption.

Q. Yeah, my question was -- was talking about -- so let me just be clear. There's no doubt that prices at the retail level are going to affect buying decisions; is that fair?

A. I think we agree. Yeah.

Q. Okay. And what I'm talking about is whether you have done any analysis or seen any analysis related to an increase in Class I prices, and whether that translates all the way through the supply chain to reach the consumer in a way that will also result in a change in consumer buying behavior?

A. I used Professor Kaiser's price transmission elasticity of 0.55. That quantifies the effect of changes in the Class I price on retail milk prices. I have not estimated that elasticity myself. I have -- recently I have thought about it. I have worked on that number, and it's a plausible number.

So I do think Class I prices influence retail milk prices.

Q. Okay. So you are saying that you -- based on the work that you have done, you have been able to validate the price transfer number that Dr. Kaiser used in his report that he provided to USDA?

A. I believe Kaiser's -- Professor Kaiser's elasticity of 0.55, that's a price transmission elasticity, is plausible.

Q. Okay. And have you ever seen a different number or a different study that would be more plausible than what Dr. Kaiser offered?

A. Not a dramatically different number, no.

Q. Okay. But you did not use his elasticity findings; is that right?

A. I didn't -- I used his price transmission elasticity. I did not use his demand elasticity.

Q. Okay. Fair distinction.

A. Yeah.

Q. And instead you used Dr. Capps's demand elasticity?

A. Correct.

Q. Okay. If you turn to page 17 of your testimony.

You have there a higher Class I utilization and a title that says "has not resulted in higher retail milk prices."

And can you help me understand how you read these numbers? Can you just put it into -- maybe one example into a complete sentence so I know how you are using it?

A. So I have three -- here three cities of 30 for

which I have data, data reported by AMS. Three cities located in the region's marketing order areas with the highest Class I utilization rates.

And if Class I utilization rates were driving high retail milk prices, I'd expect these cities to also have the highest retail milk prices.

Q. Okay.

A. But I don't find that. And so I -- I don't think high Class I utilization rates are driving high -- are driving high retail milk prices.

Q. So if we took in 2019, the 30-city average is $3.25 a gallon; is that right?

A. Correct.

Q. And then the price in Atlanta, Georgia, is $3.56 a gallon; is that right?

A. Correct.

Q. And so what would be the correlation between those two numbers?

A. It says Atlanta -- the retail -- retail price in Atlanta is higher than the 30-city average, and that retail price in Atlanta, or the 25% of the sample, so eight cities, seven or eight cities, have higher prices than Atlanta, Georgia.

Q. Okay.

A. That's the 75th percentile. So it is not among the highest prices -- highest priced cities in that year.

Q. And then in 2023, for example, its 30-city average is $4.39?

A. Yes.
Q. But Miami, Florida, is less than that at $4.21; is that right?
A. Correct.
Q. Does that tell us that the retail prices are not a match for farm prices?
A. No. It says Miami -- the retail price in Miami in that year is lower than the 30-city average in that year.
Q. And if you look at these prices as compared to what was the Class I prices at the time, do you know if these are reflective of the movement that happened at the Class I price?
A. I don't -- I don't know that over time -- I don't know what the Class I prices were in these regions over time.
Q. Do you know what the -- how -- at the retail level, do you know what the difference is, or the delta, on average, between conventional milk and milk substitutes or alternative milk products?
A. I don't have that number off the top of my head, no.
Q. Do you -- how about for organic, do you know what the delta would be at the retail level between convictional milk and organic products?
A. I don't have that number off the top of my head.
Q. You didn't analyze that for any part of your conclusions?
A. No, I did not.

Q. Could you turn to page 23 of your PowerPoint.

You talk about the most recent milk studies. And I think that you clarified Dr. Capps, the one that you are talking about here, used the IRI data or the Circana data; is that right?

A. Correct.

Q. And that's weekly data specifically limited to the retail markets; is that right?

A. Correct.

Q. And you said you didn't recall what Ghazaryan had used for the source of his data?

A. Correct.

Q. Do you know if it was weekly data that he used?

A. I believe it was weekly data.

Q. And do you know that if it was limited to retail?

A. It was retail. All three of these studies are retail.

Q. Okay. Well, you fast tracked that for me.

Because the next one was the Nielsen was the data source; is that what you said? Is that correct?

A. Correct.

Q. And so you are aware that that one is a weekly data weekly measurement of just retail?

A. Correct.

Q. And for the Son and Lusk, that would be an inelastic finding; is that right?

A. Yes.

Q. And so even with all three of these using weekly

retail data, they reached different conclusions as to the elasticity -- to the demand elasticity for fluid milk; is that right?

A. Correct.

Q. Okay.

A. All of these are more elastic than Professor Kaiser's median and more elastic than most of the papers in that -- in that literature review.

Q. All of these are substantially more elastic than the conclusions that you reached in your article in 437; is that right?

A. Correct.

Q. You can turn to page 26.

This is where you extrapolate the elasticities concluded by Dr. Capps and apply the -- I forgot what it is called -- the price elasticity? What did you call it?

A. The price elasticity of demand?

Q. No.

A. Price transmission elasticity?

Q. I was missing the transmission, thank you.

A. Yeah. Price transmission, uh-huh.

Q. Let me start again.

Page 26 is where you take Dr. Capps' demand elasticity and apply Dr. Kaiser's price transmission elasticity to start your calculations that you have done in the rest of the report?

A. Correct.

Q. And you start by using the three areas that

Dr. Capps had analyzed, the first one being the actual Circana/IRI reported retail data; is that right?

A. Correct.

Q. And that's the -- that's the weekly reported retail data?

A. Yes.

Q. And then the next bucket that you have there is untracked retail.

Is that reported by IRI or just extrapolated from the reported IRI?

A. Untracked means not in the IRI or Circana dataset.

Q. So you have taken the results that are actually in the IRI dataset, extrapolated them into, and projected them onto unreported data to get that second bullet point calculation?

A. Correct. And it's -- really what matters here is the price. The elasticity is almost irrelevant.

Q. Okay.

A. But, yeah.

Q. And then under the third bullet point here, this is the foodservice and schools.

And I think Dr. Capps also said military and other government contracts?

A. Correct.

Q. Okay. And in his report, he said that this area would be inelastic.

Were you aware of that?

A. I'm aware that he speculated that this segment of

the market had more inelastic demand.

Q. And I think -- well, do you agree with that?

A. I think that's possible. I think it's also possible that it's more elastic. I don't know.

Q. Do you have any idea which way it goes?

A. I -- I don't.

Q. Do you have any reason to disagree with what Dr. Capps had concluded, that it was an inelastic category?

A. I think that's possible, but I don't know what the number is.

Q. Do you think it is probable?

A. I wouldn't say I think it's probable. I think it's a number that I'd like to know. Yeah, I don't know what it is.

Q. You haven't done anything to find out?

A. I have not estimated it. One of the reasons why we don't estimate these things is because the prices are hard to get, the data is hard to get.

Q. I'm so sorry, I didn't hear the -- one reason you don't?

A. As ag economists, we don't typically have access to the foodservice sector, so we don't -- data on the foodservice sector. We don't have prices. The reason why we have all these estimates in the grocery store is because we have access to scanner data, so we can -- those are relatively easy to do. We don't have data on the foodservice sector, so we -- we need to speculate about

what that elasticity is.

Q. And you state here that -- that this bucket where you don't have that data input would harm consumers in the amount that you have quantified to be $18.4 million per week; is that accurate?

A. Yes.

Q. How would that harm be caused? From the increase in price differentials?

A. Higher Class I prices cause higher prices for milk in restaurants, in schools, in the military.

Q. So when you say "harm to consumers," you are just quantifying that this is the amount that the end product would increase in price, and you are saying that that would be the harm to the consumers?

A. I'm taking the price transmission elasticity of .55 and saying, there is a -- I forget off the top of my head -- that gives me a change in the retail price -- a percentage change in the retail price of I think it's 7.8% I believe I said -- no, it's 7.8% of the Class I price, and 55% of that gives me the change in the retail price.

So to quantify how much more consumers are paying at retail, I need to know what the price was to apply the percentage change.

Q. Okay. So this is -- would it be accurate then, if I -- if each time that you say "harm to consumers" in each one of these three bullet points, if I change that to say "an increase at the retail level price for consumers"?

A. Yeah. It's not just a price -- it is increased

expenditure by consumer -- by fluid milk consumers.

Q. So in each one of these, if I took the word "harm" and I said "increased expenditure to consumers," it would mean the same thing?

A. Correct.

Q. So every time there is an inflationary event at the retail level, is that an increased expense to consumers?

A. If I -- yes. If -- if I face a higher price by X for an item that I purchase, I am worse off by X dollars.

Q. Okay. And so, for example, if feed costs were to go up for dairy farmers, is that an increased expenditure for farmers consuming those feed products?

A. Yes.

Q. Not consuming, ingesting, but purchasing?

A. Correct. Correct. Yes. Agreed.

Q. And so you're using "harm" here just meaning it costs consumers more money?

A. Correct.

Q. And you would agree with me that since the last time price differentials were updated, that dairy farmers have had a significant increase in their costs of supplying that fluid milk to the market; is that right?

A. I have not seen the data. But, yeah, I believe that's correct. And if that is correct, then that's harm that's a cost to producers, yes.

Q. Yeah. That would be a harm to producers under your use of the word "harm"; is that right?

A. Yes.
Q. And that harm to producers has not been remediated since their price differentials were last updated more than 20 years ago; is that right?
A. Class I differentials? Is that what you are asking about?
Q. The Class I price differentials.
A. Yeah, I'm not sure I see the connection between Class I differentials and feed costs. But I do think if producers face higher costs, that's a burden to them, yes.
Q. And by "burden," you have used that interchangeably with the word --
A. Burden, harm, increased expenditure. Correct.
Q. Okay. I want to turn to page 29.
And on page 29 you have a chart here that's describing the effects of a 7.6% increase in nonfat dry milk and a 3.1% increase in butter production under an alternative demand elasticity scenario; is that right?
A. Correct.
Q. And so are you -- here you are talking about the effects on other classes of milk with the price one [sic] differential increase?
A. Here we're talking about displaced milk because of higher Class I -- displaced Class I milk because of higher fluid milk prices. And the effect of that displaced milk in -- in manufacturing product and milk price -- in manufacturing product markets, those dairy commodity prices, and farm milk prices.

Q. So if it was an inelastic demand, you have concluded that it would have a negative $0.28 hundredweight change in the all-milk price?

A. If -- yeah, I should be careful. I call that a "more inelastic" scenario. It actually has elastic demand for nonfat dry milk and inelastic demand for butter. But across the scenarios, that's the more inelastic scenario, yes, and that causes -- that would result in a drop in manufacturing milk revenue that more than offsets the additional Class I revenue from the higher differentials.

Q. And so then when you calculate that, you -- you have concluded that there's a net change in the all-milk price in that scenario, that would be a negative $0.28 per hundredweight; is that correct?

A. Correct.

Q. And did you factor in here an increase in Make Allowance?

A. No.

Q. You believe that National Milk's Proposal 19 asking for an increase in differentials will end up resulting in retail prices being too high, and that would decrease consumer demand; is that accurate?

A. I didn't say too high. I do think Class -- I do conclude higher Class I differentials as proposed by Proposal 19 would cause higher retail milk prices and reduced milk consumption.

Q. Have you done any analysis to determine if Class I price differentials could be set too low?

A. I don't know what "too low" means. I don't know what "too high" means. Those aren't terms that I have used.

Q. Okay. Have you done any analysis to determine if -- what the effects of the marketplace would be if Class I differentials were not set high enough to allow dairy farmers to stay in business?

Let me say it differently. Have you done any analysis on the effects of a dairy farmer's ability to supply the Class I market if differentials are not increased?

A. So in my analysis, I assume milk supply is perfectly inelastic.

THE COURT: "Is perfectly"?

THE WITNESS: Perfectly inelastic. So I don't consider supply response here. Supply response by dairy -- to farm milk price could change my results somewhat, but it's -- I don't have supply response in this -- in this analysis. Others, including myself, have modeled supply as typically inelastic, but I don't have it in here.

BY MS. HANCOCK:

Q. And is your assumption for your analysis that demand is perfectly inelastic based solely on what you described as Dr. Capps' elasticity analysis?

A. I'm sorry, can you repeat the question?

Q. Yeah. Is your demand analysis assumption, is it premised on Dr. Capps' elasticity analysis?

A. Yes.
Q. Okay.
MS. HANCOCK: I have no further questions. Thank you so much.
THE WITNESS: Thank you.
MR. SIMS: Jeffrey Sims, Lone Star Milk Producers.

CROSS-EXAMINATION

BY MR. SIMS:
Q. We're going to go through this real slow because, well, I'm slow. We're going to start with -- and I have got a couple of math questions.
A. Sure.
Q. I'm going to start with Exhibit 435. That's the prepared testimony or the prepared statement. And although the page is not numbered, it would be I guess page 21, the next to the last page where you start your spreadsheet computations.
Are we there?
A. We are there.
Q. Okay. A straightforward question. What would be Row 8, identified as in the Excel spreadsheet of Row 8, Class I price, in Columns B, C, and D, you show $19.20 per hundredweight?
A. Correct.
Q. I have looked at my statistics, and I see that $19.20 is the simple average of what we colloquially refer to as the Class I mover for 2023.
Is that where that $19.20 comes from?

A. No. I believe it is the 2023 Class I price.
Q. Okay. So how -- how is the Class I price computed?
A. Well -- so it's Class I mover plus a differential.
Q. Okay. So if I -- if we were to look at some statistics that said that the average Class -- the average Class I mover for 2023 -- and the December number has been announced already -- averaged 19.20, that's the mover without any differential, was 19.20, would you accept that?
A. I would accept that.
Q. Okay. Great. We are making progress.
So now if you will just turn over to your PowerPoint, that is Exhibit 436, and we're going to start with page 5.
A. 436.
Q. In the first bullet there, I read that this proposal -- you compute that Proposal 19 would raise Class I differentials to an average -- and I presume that's a national average?
A. Simple average across --
Q. Simple average, great, across the country of $4.07?
A. Yes.
Q. Per hundredweight?
THE COURT: Gentlemen?
MR. SIMS: Yes, Your Honor, I know where we're going, and I'll be --

THE COURT: Too much caffeine, Mr. Sims.

MR. SIMS: And too little brain.

BY MR. SIMS:

Q. So we'll do a little math.

And we look at the second bullet point, and said -- and this says -- and actually I agree with these -- these numbers. I don't challenge your bullets here -- that this would -- Proposal 19 would increase those averages by $1.50 per hundredweight?

A. Yes.

Q. Okay. So if the new average Class I differential under our proposal is $4.07 per hundredweight, and you say that -- and I agree, that the differentials would increase by an average of $1.50 per hundredweight, the current average national Class I differential must be $2.57 or thereabouts?

A. I'm sorry, I lost you.

Q. Okay. Okay. The new average differential you state will be $4.07 per hundredweight?

A. Correct.

Q. And if that is an increase of $1.50 per hundredweight -- and I would agree with that number too -- the current average Class I differential nationally must be about $2.57 per hundredweight, or 4.07 minus 1.50 equals 2.57?

A. I see what you are doing. Yes.

Q. Yes. Okay.

And I don't disagree with these numbers. In my

head, I often use $2.60 as the kind of national average differential. So we're not -- we don't have a problem there.

But let's move to page 25.

Okay. So we have -- you have -- we have taken it on faith that the $19.20 you used from Exhibit 435 on Row 8, next to last page, is 19.20. That's the national average Class I mover for 2023. Okay?

So actually the national Class I price unlike, what you have got listed here, should be the sum of $19.20 plus the current average national Class I differential.

So actually, sir, the national average Class I price from 2023 should be the sum of 19.20 per hundredweight -- $19.20 per hundredweight, plus $2.57, the average Class I differential for today. So an actual average national Class I price of $21.77.

A. I'm following you.

Q. Okay. So if we are going to compute the percentage increase in Class I prices resulting from Proposal 19, we should actually be dividing the $1.50 increase not by 19.20, or $19.20, but rather by $21.77?

A. It's possible I looked at the wrong AMS Federal Order Milk Marketing Orders statistics table and read 19.20 as the Class I price. I don't have those in front of me.

Q. Okay.

A. But if -- if that's correct, then, yes, the percent change in the retail price -- in the Class I price

would be 6.8%, not 8.7.

Q. 6.8, 6.9, that's what I did on my little calculator?

A. Yeah.

Q. Now, it seems to me that you used 7-point -- how did you get 7.8%?

A. Excuse me.

Q. In Row 9 -- I'm sorry, I'm bouncing.

435, you -- there seems to be a conflict here.

THE COURT: 435 where?

THE WITNESS: So 7.8 is the correct number. I inverted those on slide 25 of Exhibit 436. So that should be 7.8 is what I meant to write. You are claiming that should be in fact 6.9.

BY MR. SIMS:

Q. Yes.

A. I'm with you.

Q. Okay. So we're good there.

So basically --

MR. SIMS: I'm sorry.

THE COURT: Mr. Sims, we're good where?

MR. SIMS: Oh, I'm sorry.

THE COURT: Where do I look?

MR. SIMS: Okay. Your Honor, we have agreed that --

THE COURT: What exhibit, what page?

MR. SIMS: Exhibit 435.

MR. HILL: 436, page 25.

MR. SIMS: Okay. If we are looking at Exhibit 435, the next to the last page -- it is an unnumbered page, but it's the next to the last page -- Row 8 and Row 9, we have agreed that the 1920 in those three columns, B, C, and D, should in fact be $21.77 instead of, as listed, $19.20.

THE COURT: All right. And you are working on your calculator to tell me how Row 9 would change?

MR. SIMS: Row 9 would change from -- correct me, Dr. Balagtas -- the correct number should be actually -- if the correct number in -- 9 is actually -- well, let's see here, 6.9%. Excuse me. Are we about pretty close to agreeing on 6.9% on Row 9? So 1.5 --

THE WITNESS: If 21.77 is the Class I price, correct.

BY MR. SIMS:

Q. So 1.5 divided by 21.77 yields about 6.9%?

A. Correct.

Q. I believe we have at least mathematically agreed that the percent change in the Class I price would not be 7.8%, but rather would be 6.9%?

A. Correct.

Q. Okay.

THE COURT: Now, I'm not going to make any changes on this until we have gone through redirect.

MR. SIM: Yes, ma'am.

THE COURT: Okay.

BY MR. SIMS:

Q. And let's go through the same kind of exercise, just take a real quick look at had you used the Class I prices for 2023. As Ms. Hancock noted, the Class I price was particularly high in 2020- -- excuse me -- 2022.

A. Okay.

Q. The simple average mover for the year, if my statistics are correct, was 23.61, $23.61 per hundredweight, an average of $2.57 annual national Class I differential, for a total -- if I did my math right -- of $26.18, national average Class I price.

So for -- if you had used 2022 instead of 2023, you would have $1.50 per hundredweight divided by 26.18 is about 5.7% increase.

So I guess my -- our point is that your spreadsheet here, either way, whichever base year you use, makes a presumption of an increase in the Federal Order Class I price which is overstated, presuming I'm right about how the --

A. Correct.

Q. -- Class I prices are computed.

A. Correct. And the higher the Class I price, the smaller -- $1.50 is a smaller share of a higher Class I price, so that's correct.

Q. And so to the extent that the -- at least in these two annual calculations that 7.8% is overstated, then the impact of that -- even following the spreadsheet further down, we -- certainly there's the possibility that the impacts of this are overstated as it works through the

spreadsheet?

A. Correct.

MR. SIMS: Thank you.

THE COURT: It's 11:55. Do I want to break for lunch now and we'll continue cross-examination after lunch?

All right. Good.

Please be back and ready to go at 1:00. We go off record at 11:55.

(Whereupon, the lunch recess was taken.)

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THURSDAY, DECEMBER 7, 2023 - - AFTERNOON SESSION

THE COURT: All right. Let's go back on record.

We're back on record at 1:01.

All right. Who will next cross-examine?

MR. HILL: While Mr. Miltner -- this is Brian Hill, USDA -- while Mr. Miltner gets to the lectern, I would say that there is one change that is justified on Exhibit 436 on page 25. I think the witness did say that he transposed 8.7 for 7.8, if I remember correctly.

THE WITNESS: Correct.

THE COURT: I'm looking at Exhibit 436, which page?

MR. HILL: Page 25, on the first bullet point, I think he said that he just transposed those numbers. It's supposed to read 7.8% instead of 8.7%.

THE COURT: All right. Very good. And we'll make that change on the record copy. Have you located the page?

All right. And so I'd just like you to read that bullet point, Doctor, so that we have it exactly like you want it.

THE WITNESS: The correct bullet should read: "Proposal 19 raises Class I prices by 7.8%, $1.50 divided by $19.20."

THE COURT: Thank you.

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CROSS-EXAMINATION

BY MR. MILTNER

Q. Good afternoon, Dr. Balagtas.

A. Good afternoon.

Q. My name is Ryan Miltner. I represent Select Milk Producers, which is a cooperative of farmers in the Midwest and Southwest.

In preparing your report and your testimony, how closely did you need to look at the proposed Class I differentials that are in Proposal 19?

A. How closely did I need to? I -- there is an Excel spreadsheet dated from June, I believe, that lists Class I differentials by county, proposed and current, and a bunch of other columns, and those are the ones that I consulted.

Q. You noted in your PowerPoint and your written testimony, and in questions, that the average increase of the differentials was $1.50.

Did you -- in order to perform your analysis did you have to go and look at the individual Milk Marketing Orders and figure out for the Mideast Order that the average differential increase was X number?

A. I did not do that. It would -- I took a simple average across all of the counties to calculate that $1.50 increase, and I think it would it would be a good idea to think about looking -- that it would be a positive direction, productive direction for further analysis if you looked at a weighted average or if you looked at

subnational state marketing order county effects. Yes.

Q. Would you think there would be value in looking at the changes in the differentials, either on a marketing order basis or a milk shed basis or something like that?

A. I -- I think that could be a productive direction, yes.

Q. And as I was more listening to your testimony than I was focusing on the written part. And I thought it was pretty clearly presented, so thank you for that. Sometimes the economic testimony gets a little thick.

But I heard you numerous times refer to the fact that you had examined, interpreted, or drawn conclusions from other research on elasticities and things like that. And Ms. Hancock asked you if you had modeled anything.

Did you perform what we would -- what I would, I guess, call an econometric analysis of any of the impacts of the proposed Class I differential changes?

A. I did not conduct any econometrics, no.

Q. Okay. And I'm flipping through here because I still see that a lot of my questions have been already asked and I don't want to duplicate them.

A. That's fine.

Q. The Proposal 19 the increases there, have you had a chance to look into what the basis for those increases are, in other words, the rationale and methodology in arriving at the numbers that are in Proposal 19?

A. Are you referring to the increase in the Class I differential?

Q. Yes.
A. If I had a chance to look at the basis? So I have -- I'm not sure I understand. Sorry.
Q. That's okay. I'll try to phrase my question a little better.
Do you understand that the Class I differentials in Proposal 19 have some basis in an econometric model known as the USDSS?
A. I understand that that's the case, yes.
Q. You also understand that the results from that model were then examined and adjusted based on members of a working group with the National Milk Producers Federation?
A. I understand that's the case, yes.
Q. Okay. Did you look at just the results of the USDSS model output and evaluate whether that would change your assessment of the impacts of the -- of a Class I differential adjustment?
A. So I did not see any USDSS modeling or results. I -- my understanding of Proposal 19 is this spreadsheet dated from June, so I only see the output, I think, just the -- just the final Class I differential proposals, which I understand to be coming from this model.
MR. MILTNER: Your Honor, could I get Exhibit 301? And I can hand that to the witness unless you are planning on doing so.
BY MR. MILTNER:
Q. Dr. Balagtas, that's a spreadsheet that was

introduced as an exhibit.

Is that -- well, first of all, do you recognize that spreadsheet at all?

A. Yes, I do.

Q. Does that look like the spreadsheet that you were provided that gave the differentials you evaluated?

A. Correct. Yes, it does.

Q. And if you are looking at that spreadsheet, I don't think you need to flip through the pages or anything, but which letter column would you have looked at to complete your analysis?

A. Column O as Proposal 19, and then Column I as the current differentials.

Q. Did you look at all at Column -- Columns F?

A. I -- I have seen them. I didn't give them any thought or I did not analyze any of them. I didn't.

Q. Okay. Did you know that those are the columns -- F, G, L -- those were the numbers derived from the USDSS model?

A. I did see, because the first row labels have model estimates in the name, I did see that, and suspected that they were from the model. Yes.

Q. Now, even though I was listening to your testimony, I did read your written statement, so there was not a waste of your time by any stretch. And on page 6 of your written statement, which I believe is Exhibit 435.

A. Page 6?

Q. Yes. In the third paragraph there, it reads, "I

start from the premise that Class I differentials set in 2000 were appropriate for market conditions during that time to support adequate supply of fluid milk and dairy farm income."

Now, my question is, you started from that as a premise, which is different from a belief or a conclusion.

So do you believe that the differentials that were set in 2000 were appropriate?

A. I don't have a view of that.

Q. You acknowledge that you have done some -- well, not some, but a good bit of work in dairy and Federal Orders during that period of Federal Order Reform.

Were you at all involved in research or kind of watching that process?

A. I don't believe I was involved -- I -- I don't believe I was involved in that process.

Q. Okay. Now, your statement there speaks specifically to the differentials set in 2000.

Do you have an opinion as to whether the differentials as they stand today are at appropriate levels?

A. So based on the premise of 2000 -- based on the premise that there are adequate supplies in 2000, combined with the fact that we have had a 40% increase in milk production since then, and a decrease in milk consumption since then, I think it follows that there is adequate supply for Class I use today.

Q. Okay. Speaking just to the differentials, do you

believe that the Class I differentials today are set at an appropriate level? And if you don't have an opinion, that's fine.

A. I'm not sure I have an opinion on that. I do not have an opinion on that.

Q. You have also provided some testimony on the retail price of conventional reduced fat milk.

Have you as part of your work for your testimony, or otherwise, looked at the price of retail conventional milk in real terms?

A. So starting with your statement, I don't think I looked at the price of conventional nonfat milk, so I'm not sure about that.

But then can you restate the question that you followed with?

Q. Sure. If I said nonfat, I'm sorry, I think your testimony refers to reduced fat. If I misstated that, that's my fault.

My question is, as part of the work for your testimony here, or otherwise, have you studied the price of conventional milk retail price in real terms?

A. Controlling for inflation?

Q. Yes.

A. Adjusted for inflation? No.

Q. If -- if CPI from 2000 to 2022 is up about 71.2%, and the reported price of fluid milk, conventional fluid milk, is up 47.1% over that same timeframe, would that indicate that -- well, would you be able to draw any

indications from that or draw any conclusions from that data?

A. Yeah, that -- and to be clear, I don't think I reported time series data on fluid prices as you are -- as you discuss that I recall. But in general, inflation -- inflation means that any growth in nominal prices results in a smaller growth in real prices. That's what -- that's what you mean, yes.

Q. I believe you acknowledged or stated previously that the Class I differentials, other than some changes in the Southeast, have remained -- have been unchanged since 2000; is that correct?

A. That's my understanding, yes.

Q. And I'm trying to find where the statement is so I can give it verbatim, and I'm not finding it at the moment.

But I believe you stated that one of the purposes of the Federal Orders is to help equalize bargaining power between farmers and milk buyers; is that correct?

A. Yeah. My understanding is one of the objectives of Milk Marketing Orders is something along the lines of fair treatment of farmers with respect to milk buyers.

Q. Do you understand that that fair treatment is -- is specifically tied to the equalization of bargaining power between farmers and their milk buyers?

A. That would make sense to me, yes.

Q. Do you have any understanding as to the genesis of that statutory goal?

A. I don't know the specific history of the statute. I do understand looking back on, you know, turn of the last century, we were looking at a world with -- so lots of relatively small farmers selling to a relatively few and large milk processors. And that -- that put farmers at a disadvantage in terms of negotiating power. Yes, I understand that.

Q. Do you understand part of the analysis was also due to the perishability of milk?

A. Yes.

Q. Okay. Do you believe that the -- that in an unregulated market, dairy farmers and dairy handlers have equivalent or acceptedly equivalent bargaining power?

A. I'm not sure what the world would look like in an unregulated market. We have had Marketing Orders and other policies for a hundred years. And so I'm not sure I'm -- I'd speculate on what the world would look like in their absence.

Q. Do you believe that minimum regulated prices -- minimum regulated classified prices and marketwide pooling are advisable in today's dairy marketplace?

A. Again, it would -- relative to what would be the question, what would the world look like in their absence, what other institutions might emerge, contracting, for example. And so would -- yeah, whether -- whether the effect of Marketing Orders relative to that unobserved, hypothetical, unregulated world is -- is really difficult to gauge. I'm not trying to be evasive. I think it is a

hard question to wrestle with.

Q. It might be the question, right? Or one of the questions.

I'm going to give you a series of hopefully brief hypotheticals and ask your opinion on it, if you are you -- if would indulge me.

I want you to assume that, in fact, CPI is up 72% between 2000 and 2022, and that over that same period, the price of a gallon of milk at retail conventional is up 47%. And I want you to assume that the Class I differentials over that same period have remained stagnant. I don't think those are hypotheticals, but accept them as true if you would.

THE COURT: Accept what?

BY MR. MILTNER:

Q. Accept those statements as true, if you would.

And then I want you to assume that, in fact, farmers do not have bargaining power versus their milk buyers.

Does the fact that the regulated component of the Class I price having remained constant for 22 years account for at least some of the 23% gap between inflation and the shelf price of conventional milk?

A. If Class I differentials had grown over that time -- I'm sorry, what's the gap we're talking about, the gap between inflation -- inflation and growth in milk prices?

Q. And growth in the retail price of conventional

milk.

A. Yeah. So if Class I differentials had grown over that time, retail prices would have grown by more than what we have observed. I think that's what you are asking me. I'm not sure.

Q. Not quite what I'm asking. Maybe let me approach this somewhat differently.

The Class I differentials you would agree establish a regulated minimum price, correct?

A. The Class I differentials together with the mover, yeah.

Q. And sellers of milk, producers, and their cooperatives can negotiate prices higher than that minimum, correct?

A. Correct.

Q. Okay. One of the issues in the hearing has been how effective are those over-order premiums.

And so my question is, given that the Class I differentials have not changed in 22 years, and there is a gap between overall inflation and the inflation of the price of a gallon of milk, conventional milk, is that an indication that over-order premiums, while an important part of the marketplace, may not adequately cover inflationary pressures?

A. I -- so I think there's a premise in the question that retail milk prices should have grown at the rate of inflation, that's why there's a gap -- that's what you are calling a gap. I'm not sure that that's -- I think that's

a judgment that I'm not willing to make.

I do think if Class I differentials had grown over that time period, Class I prices -- or retail fluid milk prices would have grown faster relative to inflation than what we have observed. So I -- I'll agree with that part.

But I -- yeah. I think -- yeah. Real milk prices, retail prices of milk have fallen over time, I think -- I agree with you with that. I don't -- I don't agree that it's -- it's obvious that they should not have, I guess is what I'm saying.

Q. That's fair. And if you are not willing or you don't feel comfortable drawing that conclusion, would you agree it is a valid hypothesis?

A. Sure. Yes.

Q. Okay. I wanted to ask a few questions about the Excel spreadsheet or the printouts you have at the end of your written statement if I could.

You stated in your PowerPoints that "in the absence of relevant demand elasticities, I report effects for a wide range of elasticity values."

And that was the elasticities of demand for nonfat dry milk and butter, correct?

A. Correct.

Q. You describe there's an absence of relevant demand elasticities.

Were you able to start from a point of any demand elasticity reference that you thought was a fair place to start?

A. I have seen a few elasticity estimates. There are some in the documentation from the ERS dairy model. There are some in the documentation for the FAPRI model. So there are some out there, yeah.

Q. So if the -- if those were your reference points, do you -- where -- where do the elasticities that you plugged in here relate to those that you found referenced elsewhere?

A. I believe -- and this is off the top of my head -- that that powder and nonfat dry milk elasticities in both of those studies are more inelastic than my inelastic case. I believe that that's the case. I also think it's not clear that they are relevant to what I'm trying to do here.

Q. They are not relevant?

A. Well, so in the case of the ERS study, they report a demand elasticity -- a U.S. demand elasticity for nonfat dry milk, for example. That's demand for nonfat dry milk from consumers in the United States.

Q. Right.

A. So that -- that's not relevant for a market for which 75% of the product is exported. So I need a demand -- global demand elasticity, if you will, for U.S. nonfat dry milk.

Q. And you -- I think what you have stated, and more -- well, regardless of the words you have used -- essentially what you have said is that I had to put some elasticities in here, and I gave a range, but I -- you

don't know -- you don't know which column is more likely than another of being reality?

A. I think that's accurate.

Q. I don't mean to sound flippant when I ask --

A. No, I think it is absolutely accurate.

I do think the elasticities I have here are -- are all plausible. If you told me that demand elasticity for nonfat dry milk was minus 3 or minus 12, I wouldn't argue with you. I think those are plausible.

And -- and my point here is, within that plausible range, the outcome -- you know, the net effect on farmers could flip, could go black or red, right. And that's -- that's the -- so I -- I present a plausible range. It might be a little wider; it might be a little narrower, right? But within that range, the net effect of Proposal 19 might make farmers worse off or better off, and that for me would be -- would be troubling.

Q. Were you here for Dr. Brown's testimony yesterday?

A. I -- I watched it as I was driving in the morning, and then I watched some of the cross in person, yes.

Q. Did you happen to hear his statement that -- when people ask, he says that, well, the milk price will be between 15 and $30 per hundredweight? Did you hear that statement?

A. Yeah, and I heard some statements about not making bets on his -- yeah, not -- not gambling on his -- or investing on the basis of his model.

Q. But you are -- you're a little bit in the same

boat because you are saying that the total change in farm milk revenue in the all-milk price is between a loss of $637 million and a gain of $262 million, and it could be outside of that range, we just don't know?

A. And that is exactly the point I wanted to everybody to understand here is that there's uncertainty on the net effect on -- on dairy markets. I think there is a lot less uncertainty about what's happening in the fluid markets. If you had told me, you know, that the demand elasticity for fluid milk is minus point -- I think -- so I have minus 1.2. If you told me it was minus 1.8 or minus .9, I wouldn't argue too much with you, and it doesn't change my results a lot. It changes the quantity of milk that gets diverted from Class I and to manufacturing, so it changes the magnitude, does not change the direction of the effects. Right?

The uncertainty I'm talking about here in this table changes the direction of effects, and so there's -- I think we ought to be cautious, right, about -- I think AMS ought to be cautious about pursuing something when we're not -- it's not clear even the direction of the effect on -- on the all-milk price.

Q. You have presciently steered me back to fluid milk elasticity, which is where I want to ask my last set of questions.

A. All right.

Q. I don't know that anybody -- well, most of the people in here had not seen Dr. Capps' study until he

presented it.

When did you first have the opportunity to see it?

A. I saw a draft maybe a week before his testimony.

Q. Was that the same time that IDFA reached out to you about presenting additional testimony on the topic?

A. No. I had already started my work in -- for IDFA in August.

Q. Okay. Now, there was another study that Dr. Capps was I believe lead author on that gets sent to AMS and then to Congress. The most recent one isn't fully public yet, but the one prior, which was published late summer, early fall, reported an own-price elasticity for milk of --

(Court Reporter clarification.)

BY MR. MILTNER:

Q. -- own-price elasticity -- reported an own-price elasticity of negative 0.037, if I remember correctly.

What do you think of that number?

A. It's quite inelastic. I don't know the data he used to estimate that parameter. But it's -- it's not surprising in the context of the long history of -- of published estimates in this area.

Q. And, in fact, it is those studies that show an inelasticity of own-price -- own-price elasticity, it is elastic, which tend to be inconsistent historically, correct?

A. The -- these recent studies that I have cited tend to be more elastic than the body of work that's -- yes,

than the body of work.

Q. Does it surprise you that Dr. Capps did two studies in such a close proximity of time and ended up with such different results?

A. It's -- it's not surprising that you get different estimates. One, this work is tricky, hard to do, and I respect Dr. Capps' work in the area. But also, even if you use the same methods, estimates on using different data will create different -- will give you different estimates.

So, for example, I think in those promotion studies, I use annual historical disappearance data, I think -- I think that's case I'm not sure. Right? And so that's -- that's -- that's different than the type of scanner data we're talking about that that -- these recent studies that I have cited use. And -- and so not too surprising given that we're looking at different data sets, different methods, that you -- that you get different estimates.

Q. And the three studies cited that show elasticity greater than negative 1 are all using weekly scanner data, are they not?

A. Correct.

Q. And I asked Dr. Capps if he thought that weekly data on sales and sales prices and sales volumes might capture large promotional changes in price and volume that might not be captured when measuring monthly, quarterly, or annual data.

Do you think that that might be the case?

A. Yes. So the weekly data will capture variation week to week, or even month-to-month variation, that annual data would not -- that is not observed in annual data, yes.

Q. This morning we had testimony from a gentleman from Maple Hill Creamery I think is the name, if I have it correct, and he described a promotion that lowered his price by 7 to 10% resulting in a 30% change in his sales for that week.

So that would appear to be very elastic, wouldn't it?

A. That looks like responsive consumer behavior, yes.

Q. And over a month period, or a yearlong period, that might not be the -- you may have the same sales data, but measured a different way, showing a different elasticity, correct?

A. Correct.

MR. MILTNER: Thank you. That's all I have.

THE COURT: Mr. English.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Good afternoon. Chip English for the Milk Innovation Group.

Dr. Balagtas, thank you for being here.

I have two sets of questions. One is a direct follow-up on Mr. Miltner --

THE COURT: Slowly, please.

MR. ENGLISH: It's sunny outside. I'm trying to get done. But I will slow down. Thank you, Your Honor.

BY MR. ENGLISH:

Q. To the extent you may have looked at the most recent Dr. Capps study, are you aware that he studied cross-elasticities with substitutes for fluid milk such as beverage, water, juice, and plant-based beverages that claim to be milk?

A. I am aware, yes.

Q. And are you aware that that is different from any study he has done for Congress?

A. I am aware, yes.

Q. Turning to page 26 of Exhibit 436, you had a conversation with counsel for National Milk on this page. And I -- I think I understand it, but I'm not sure the record is clear.

So first, what is consumer surplus? What does the term consumer surplus mean?

A. It's the difference between the maximum price consumers are willing to pay and the price that they do pay in markets. It's a -- it's an economic concept that measures well-being of consumers in markets.

Q. And why is that important to your analysis?

A. Because in this case, consumers are affected by the fluid milk price, a change in the fluid milk price in retail prices, and it is important to quantify the effects of that change on consumer well-being. And consumer surplus is the standard way to measure that effect on

their well-being.

Q. All right. Thank you.

My remaining questions are about the three bullet points, and my understanding, and see if you agree with my understanding.

Your first bullet point simply used Dr. Capps' results and concluded that there was -- and using the economic term -- harm to consumers of $11.8 million per week, correct?

A. Correct.

THE COURT: And to be clear, that's million with an "M"?

MR. ENGLISH: Million with an "M."

THE COURT: Thank you.

BY MR. ENGLISH:

Q. Your second bullet point assumes that Dr. Capps' data can also be applied to the untracked retail of 12%, correct?

A. Correct.

Q. And when you say harm to consumers is 14 million, my understanding is that is 2.2 million added on to the 11.8 million to get to a total of 14 million if you took the first two bullet points together; is that correct?

A. Correct.

Q. So it's cumulative, correct?

A. Correct.

Q. And so the third bullet point, which is then assuming Dr. Capps' data --

A. I'm sorry, can you go back and say that?
Q. So as I understood it --
A. Yes.
Q. -- the first bullet point is, just applying Dr. Capps, you conclude that there's this harm to consumers of $11.8 million per week --
A. Yes.
Q. -- correct?
A. Yes.
Q. And the second bullet point is cumulative, that is to say if you take 12 -- the 12% that is untracked retail, and you add that in, you end up with $14 million harm per week taking both of those data points, correct?
A. Correct. $14 million per week is the loss in consumer surplus for all consumers at retail, the 76% in Capps' data.
Q. Thank you. That's what I'm trying to get at. I'm trying to get at this cumulative concept as opposed to somehow it's additive.
A. Correct.
Q. Does that question make sense?
A. Yes.
Q. So then that's -- my -- my third point then is that point too is cumulative, that is to say the 24% that is foodservice, schools, military, whatever, when you add that to the first -- to the all retail, that's where you end up with 18.4 million, correct?
A. Correct.

MR. ENGLISH: Thank you. That's all I have.
THE COURT: Who next has cross-examination?
MR. SLEPER: Good afternoon, Judge.

CROSS-EXAMINATION

BY MR. SLEPER:

Q. Good afternoon, Professor.

A. Good afternoon.

Q. I'll call you "Professor," because I'll butcher your name up.

I just have a few questions, a couple of them just for clarification.

THE COURT: Please identify yourself.

MR. SLEPER: Okay.

BY MR. SLEPER:

Q. I'm primarily going to focus on Exhibit 435 --

THE COURT: No, no. Say who you are.

MR. SLEPER: Oh, I'm sorry. Jim Sleper, S-L-E-P-E-R, Sleper Consulting, LLC.

Thank you, Judge. I forgot about that.

BY MR. SLEPER:

Q. In your exhibits in both 435 and 436, you discuss the impact an increase in Class I differential is going to have on consumption, additional milk going into manufacturing purposes. You back that up with some of your analysis with elasticities and so forth. I'm just paraphrasing if I can.

I didn't see anything in terms of what one of the major tenets or premises in which National Milk actually

increased -- or asks in this proposal to increase Class I differentials, and it had to do with the impact of additional costs associated with servicing the Class I market today as compared to back in 2000 Federal Order Reform; is that fair?

A. I would say the first third or so or quarter of my testimony, both written and in the slides, addresses that question.

Q. Okay. But I didn't see a whole lot of detail on that aspect.

And all I'm simply asking is: Do you recognize that there are additional services, additional costs in servicing the fluid market?

A. I understand that that's the case, yes.

Q. Okay. So you do understand that balancing costs have most likely increased 2023 as compared to 2000; plants do not operate seven days a week; fluid plants take special quality requirements to receive their milk and so forth.

But you do recognize those are additional costs, and those are just some examples; is that fair?

A. I recognize that those are additional costs.

Q. Okay. One of the major aspects of it has to do with hauling costs as well: Diesel fuel, labor, terms of haulers and so forth. Okay. Good to know.

It's often that stated dairy farmers are price takers, and so when I see your exhibit, and I think it was 437, which was your Marketing Power of Co-Ops, would you

agree with my statement that dairy farmers are indeed price takers or not?

A. I think individual dairy farms are price takers, yes.

Q. So that being the case, are co-ops price takers or not?

A. My analysis found that they have a small amount of market power.

Q. Okay. So was a co-op a buyer or a seller of milk then?

A. Both.

Q. Both.

A. I think of -- if you think of a co-op as a producer, then they are a seller of milk, yes.

Q. So even if I am a member of a co-op and I own those facilities, am I a buyer then or am I a seller?

A. I think of co-ops as a seller of milk and also a processor of milk.

Q. Okay. If I can go to your -- and I think it's Exhibit 435, which is your written testimony, page 13 specifically. And let's see here. The second paragraph, and I think it's the second line of that particular paragraph, you state: "Thus, in aggregate, U.S. milk production is more than adequate to supply national fluid needs. Over the same period, Class I utilization is low and falling in all but three of the Federal Milk Marketing Orders regions, which leads me to conclude that milk supplies in those markets are also adequate to serve the

fluid milk market."

Okay?

A. Yes.

Q. So there's three markets that when I look at, I believe, it's Table 3, which is a couple lines up -- or a couple pages up, and it specifically the three markets that you are referencing, that this change in utilization I think has to do with the Appalachian, which is -- and the Central market, and let's see here, if I have got it right, the Southeast.

A. Yes.

Q. That would be Federal Orders 5, 30, and 7.

Why not Florida? Why don't you think Florida --

THE COURT: Let me stop you. Are you on page 10?

MR. SLEPER: Yes. I'm on page 10, Table 3, Judge.

THE COURT: And did you mean to skip over Central?

MR. SLEPER: No, I stated Central.

THE COURT: You said Appalachian --

MR. SLEPER: So there's three that show a positive number, Your Honor: Appalachia, Central, and the Southeast.

THE COURT: Thank you.

MR. SLEPER: And those are Federal Orders 5, 30 and 7, respectively.

BY MR. SLEPER:

Q. Why would you -- why wouldn't Florida be one of those changes, just speculating?

A. Because I followed -- I reported data in which the

Class I utilization rate in Florida, between 2001 and 2022 fell by 7.7 percentage -- percent, excuse me.

Q. Okay. So when I go back to page 13, and if I understand the second sentence that I read, in essence, you are saying in all of the Federal Orders, including those that actually increased, that there's an adequate supply of milk for the fluid market; is that fair?

A. I believe that there's an adequate supply of milk in all Federal Orders for fluid uses.

Q. Okay. Are you familiar with the milk or the supplemental milk that's brought into Florida as a good example in the fall months?

A. I'm familiar that milk is shipped into Florida. Yes.

Q. So you also make the statement that there is -- sounds like, and I'm paraphrasing, you know, there's sufficient quantities.

But I would be here to say, and I know a little bit about it, that during the months of let's say August 15th through December 15th, it's pretty durn short in Florida. There's a lot of supplemental milk coming into the market. So there would be dairy farmers down there specifically who would say, there's not even close to an adequate supply to meet the fluid market.

So would you help me to understand why there's -- in your general statement, there seems to be no problem, when, in fact, in real life, there are really shortages, especially in the Florida market, as well as Federal

Orders 5 and 7? I'm just trying to understand the paradox here.

A. Yeah, I don't see a paradox. I think the shipped milk is part of the adequate supply.

Q. Okay. Even though the dairy farmers are incurring tremendous cost to bring that supplemental milk in, when you, in fact, say there's plenty of milk. Okay.

MR. ROSENBAUM: Is there a question, Your Honor? Is that a question?

MR. SLEPER: No, that was just a comment.

BY MR. SLEPER:

Q. Let's go to page 15, if we could. And I don't have but just a one or two more questions, Professor. Yeah. Just trying to get clarification.

The next to the last paragraph in page 15, the paragraph that starts with "finally." So: "Finally, it is important to note the Federal Milk Marketing Orders' objective of ensuring adequate supply of fluid milk for consumers implies that encouraging consumption of fluid milk is a goal of the regulation."

So does the Federal Milk Marketing regulations or the Act itself actually state that there is a goal of encouraging consumption of milk?

A. I don't believe so. I think I infer that from the fact that we're worried about adequate supplies, in which case I'm -- I think adequate means we want enough for consumers to be able to drink milk.

Q. Okay. I got you. And that's what I assumed. The

word "implies" was written in that particular sentence. Just getting clarification. Okay.

My last area would be on page 18, next to the last paragraph. The paragraph that is: "Notwithstanding the ambiguous effect on milk producers, Proposal 9 [sic] would cause significant disruption in dairy markets," and then you go through some of those.

THE COURT: Did you mean Proposal 19?

MR. SLEPER: Yes. If I misstated that, I apologize, Your Honor.

THE COURT: Thank you.

BY MR. SLEPER:

Q. Help me understand "significant disruption," if you could, please. Give me some examples, give me some real life, what do you mean by significant disruption.

A. Oh, a 7% increase in the retail price of milk, a 5% decrease in milk consumption, 2 billion extra pounds -- 2 billion pounds of producer milk moved from Class I to manufacturing classes, lower prices of dairy commodities. Those that's what I mean by disruption.

Q. Okay. In it you say "ambiguous effect on milk producers." It sounded like you at least heard some of Dr. Scott Brown's testimony yesterday.

Do you believe in some of his -- or do you believe in the FAPRI analysis where it does show there would be an impact on dairy producers?

A. I -- if I recall, he shows a long-run effect of a $0.01 -- $0.01 per hundredweight -- I can't remember if it

was in percentages or a hundredweight, but it is $0.01 per hundredweight increase in the all-milk price.

Q. Okay. I was just trying to get an understanding when you stick the word "ambiguous" in there versus real life study showing specific numbers, I was just trying to get a little understanding of the word "ambiguous."

A. I'm not sure what you mean by "real life study." But so he has a point estimate that says $0.01 increase in the all-milk price. Right? I have a result that is similar, $0.03 per hundredweight increase in the all-milk price. I further go on to say, I'm not certain about some of the key important -- the key parameters that you need to know to estimate that effect. And so over a plausible range of parameter values, that $0.03, or $0.01 in Scott's -- in Professor Brown's case, might be negative or positive.

Q. Okay. In the very, very last phrase of that particular sentence, you know, you are going through these various examples of significant disruptions of dairy market, and you mention the diversion of milk from Class I uses to manufacturing uses.

So when you say the "diversion," you are talking about the price of manufacturing products and so forth. You are not talking about the actual physical movement of milk to manufacturing, are you?

A. I'm talking about the actual physical movement of milk from Class I uses to manufacturing uses.

Q. So it's the actual additional cost of moving that

milk to manufacturing?

A. No, it's -- it's the fact that you are taking milk that was Class I, and now selling it, in my scenarios, in Class IV uses.

Q. Okay. I -- I think I have a better, clear understanding.

MR. SLEPER: Thank you, Professor.

THE WITNESS: You're welcome.

THE COURT: Thank you, Mr. Sleper.

Who next has cross-examination questions?

Now, does the Agricultural Marketing Service want redirect before you ask your questions or do you want to ask your questions now?

MS. TAYLOR: I think we're fine going now.

THE COURT: All right. I invite the Agricultural Marketing Service to ask questions.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. Good afternoon.

A. Good afternoon.

Q. Thank you for joining us here today.

A. It's good to be here.

Q. Is this the first Federal Order hearing you have done?

A. It is.

Q. We are getting a parade of all of the economists in this lovely, lengthy hearing, so it's very nice to meet you.

A little bit of context. I have been kind of telling each of the economists that have testified before and have done that, here at USDA, our job, make sure the record's clear, ask you questions about your work, maybe take the opportunity to ask you a little bit more broader questions that you could use your professional experience to give an answer to, because once this is over, we can't come back and ask you any questions. So this is our one-time opportunity to make sure we're clear, so to give you that context.

And I'm going to try not to be repetitive with what's been asked.

If we could turn to page 13. Some of these are going to be quick and simple.

A. Of 435?

Q. Yes, of your PowerPoint. Oh, 436, excuse me. And I'm probably just going to stick to Exhibit 436.

THE COURT: Exhibit 436, page?

MS. TAYLOR: 13.

THE COURT: 13.

BY MS. TAYLOR:

Q. You have the list of orders on here, and the same list it looks like on 14?

A. 14, correct.

Q. I see orders -- the Arizona order and California not on this list. Just wanted some clarification why they are not there.

A. Yeah. Because I was trying to compare Class I

milk and Class I utilization rates over the 20 years since the last revisions to Class I differentials. The California Federal Order didn't exist in 2000, 2001, nor did Arizona, I believe, so I left those out. Both of those are low Class I utilization rate Marketing Orders, though, and so I don't think that -- and they are included in the all-markets combined numbers.

Q. They are included?

A. Yes.

Q. So 2022 number also includes California and Arizona?

A. Yeah. That's why we have 41 billion pounds is total Class I producer milk across all market orders.

Q. Okay. I didn't sum these, so I guess if I did that, I would figure out --

A. Yeah, you know what? I probably should have just included the two just for completeness.

Q. Okay. I appreciate that.

And the percentage change, that's a weighted average?

A. For all markets combined?

Q. Uh-huh.

A. Yes.

Q. Okay. And then the same thing on the next page, that is a weighted average?

A. Correct.

Q. Okay.

A. So it's, yeah, a percentage change in the total,

which gives you the weighted average. Yes.

Q. Okay. Thank you.

On page 15, and you have talked about it some, and I think maybe you just were asked a question along this line. You talked about how in six of the regions, Class I use rates have gone down, and you take that as that there's more than adequate supply of milk for fluid uses. And that doesn't necessarily consider, as we have heard here in other testimony presented, the willingness of that milk to supply.

A. I'm sorry, the --

Q. Willingness.

A. Willingness. Of?

Q. The milk to supply these areas. We have heard testimony about difficulties in getting milk to Class I, and there are producers and cooperatives providing that service now, but at a great cost, according to them, and that might not continue in the future.

But I wanted to see if you considered that at all while you were doing your analysis.

A. The willingness, I -- I think producers, including cooperatives -- hmm, the willingness...

Q. New term for you, maybe.

A. Yeah.

Q. They say -- I'll summarize -- I'm willing to do it right now, but I might not be willing to do it in the future.

A. I think the fact that -- looking at, again, on

page 13, the fact that Class I utilization rates have been falling suggests that farmers have been willing to deliver milk to those -- to these areas.

Q. Okay. And did you consider how Federal Order pooling provisions might impact that Class I percentage number? I mean, there's pooling provisions that allow for diversions, which can lower that number in the grand scheme of things. There's other pooling provisions in orders that kind of keep that milk pooled all the time.

A. Right. And I don't -- you know, if you look on page 14, of 27%, that's -- that's the Class I utilization of pooled milk. So I'm not including here the fact that there's an additional amount of milk that's not pooled. I think the Class I is 20% of all milk produced, right? So even lower. But I'm aware of that and that there are pooling conditions and that, but I've not here evaluated them.

Q. Okay. On page -- or 16, slide 16, in your highlighting the three Southeast orders. In those markets, a lot of Class II products are often manufactured at Class I plants.

So did you consider how that combined Class I/II utilization might impact the milk needs in that market and thus kind of your evaluation?

A. I -- I did not do that here. I just took the monthly Class I utilization rates and looked at peak -- peak months. So, no, I did not.

Q. Okay. I want to turn to slide 16.

A. 16?

Q. 17. Thank you. I haven't gotten my afternoon Starbucks yet, so I might be slow.

I think in cross helped clarify how those numbers -- you know, you use these numbers to draw the conclusion that the Class I -- the high Class I utilization percentages haven't resulted in higher retail milk prices.

What struck me I think looking at that is, well, Federal Orders don't regulate retail prices, one. And we have had handlers testify at this hearing about how they don't control the retail prices and how those things are set, et cetera. And I just -- you know, and a lot of times -- or there's been testimony about how it's still used -- milk can still be used as a loss header in the retail space.

So I was just -- wanted to get your opinion on how that also might affect this analysis and if those things need to be considered.

A. Yeah. I'm not familiar with various state regulations that might be in effect in these areas.

Let me say what I would have expected to find if there were inadequate supplies of Class I milk in these areas. Right? One measure of inadequate is that there's so little milk that we end up with high prices of milk. Right? And that's why I decided to look at these retail milk prices. These three cities -- these cities in these three Marketing Orders with high Class I utilization rates

don't in this sample have a particularly high retail milk price. I'm not sure if that's -- helps you understand what I'm trying to communicate here.

Q. Okay. And did you look at any orders that have low utilization -- Class I utilization rates and look at how those compare to the retail prices in those markets?

A. Those low-utilization-rate cities would be in the in the 30- -- in the whole sample, so --

Q. Sure.

A. -- so they show up in the 30-city average or the 75th percentile. So comparing to all cities, including those low -- including cities in low utilization marketing areas, in that sample, these three cities don't have the highest retail prices. Let's say it that way.

Q. Okay.

A. Don't have systematically higher retail prices.

Q. And so from that, the opposite -- I don't know how else to say this -- so in areas where there's lower utilization rates, this data would show us that they may have higher retail prices?

A. I'm -- I don't think that's -- I don't think that follows. I'm not saying that there's an inverse correlation.

Q. Okay.

A. I'm saying there's -- that doesn't look like there's much correlation at all. Does that make sense?

Q. Yes.

A. So I'm not saying that high Class I utilization

rates are driving low retail prices. I say the high Class I utilization rates appear to be unrelated to retail milk prices.

Q. Okay. And I --

A. I'm sorry, I probably should have made that -- could have made that point clearer.

Q. That's okay.

And the next slide in -- so in some of these slides you talk about the three Southeast orders, and in other places you talk about Appalachia, Central, and the Southeast. I'm on slide 18, for example, rising Class I utilization rates.

Just wondering why you didn't look at the --

A. Central. Yeah.

Q. Between those comparisons.

A. Yeah, I should have picked a city from the Central.

Q. Okay.

A. You are right.

Q. I'm going to turn to slide 26.

A. Slide?

Q. 26.

A. I think I -- I'm sorry, going back one. I remember now why I picked Florida, not Central.

Q. Uh-huh.

A. So if you look at Central, it did have a rising Class I utilization rate, but it is a Class I utilization rate of 27% compared to Florida, which is 83%. So I was

looking -- I was trying to look at regions with high Class I utilization rates.

Does that make sense?

Q. Yes. And then --

A. Yeah.

Q. The other slide was looking at the --

A. I should have said -- I agree.

Q. The other slide was then looking at the increase?

A. Right.

Q. Okay.

A. So 26?

Q. Yes, please.

So I think I gathered from some cross-examination maybe from Mr. Sleper -- I think I wrote it down somewhere -- on your paper that you imply that the -- an increase in -- that one of the goals of the Federal Order system is to ensure an adequate supply of fluid milk, which is in the Act, and from that you imply encouraging the consumption of fluid milk. And the Act also talks about and how the Department must look at kind of the three-legged stool and how the Federal Order impacts both consumers and producers and handlers, and we do our best to find a balance between those competing interests.

So did you take a -- try to do a look at the impact to those two other legs of the stool? And I ask, because later on you talk about the net-net, or maybe just the net. Or maybe somebody else used net-net in this hearing.

A. I think you said slide 26, and I'm not following --

Q. Well, I said that, and then I asked a different question --

A. Okay. So let's go back to the question then.

Q. Yeah. So -- well, I put my note on this slide because you're particularly talking about the impact to consumers.

A. Right.

Q. And the Act does mention consumers as providing an adequate supply of milk for consumers, but it also talks about uniform payments to producers and uniform costs among handlers. So we look at the balance of those three competing interests and try -- do our best to find that balance. And so this looks at the consumer side of things.

Did you look at the impact to the handler and the producer sides of the stool? Later on you talk about kind of what -- what the net impact is, which to us would look at what -- how that -- how does that impact all three, not just the one.

A. Right. I do look if -- slide 29, I do look at the change in the all-milk price, which I think of as the ultimate effect -- or a big indicator of the effect on producers. Right? Higher milk prices are better for producers; lower milk prices make producers worse off. So I do look at that one. I don't look at returns to milk processors.

Q. I have a few questions on that slide you just mentioned.

But before I get there, you say one of your assumptions you used is that the decrease in Class I pounds you assign to Class IV.

So we have had testimony, Dr. Capps' study, which you have talked about a few times, showed that yogurt was a competing product to fluid milk.

So would -- another analysis, would you consider assigning some of that to Class II instead of IV? Is it problem to put everything in IV?

A. So there's two different types of substitution, I think. And the diversion I'm talking about in my study takes the lost Class I sales, pounds, and puts it somewhere. I put it in Class IV. Right?

The substitution you are talking about would affect how much lost Class I sales we have. Right? I use his all -- yeah, so if -- to the extent that some of this -- some of the lost Class I sales goes into Class II, depending on that substitution pattern between fluid milk products and Class II, yes, I think, yes, that would -- that would reduce the net effect -- that would reduce the quantity that goes into Class IV, and there would be some additional milk in Class II I think that -- yes, that's correct.

Q. How come you didn't consider any of the milk to go into III when III seems to be a growing market?

A. Yeah. I -- I -- somewhat arbitrary. I have a

sense that Class IV is also growing. I think it would be fair to evaluate the impact of some of this milk going into Class III, and I think that does not change the qualitative effects of my analysis. You would have increased cheese production, which also affects the complex of -- well, cheese commodity prices, and there- -- and therefore the complex of FMMO prices, but through Class III rather than Class IV, I think. That would be an interesting and valid way to think about this as well.

Q. Okay. We have also had discussion or some talk on the -- at the hearing from other witnesses that cooperatives have -- some cooperatives have base/excess plants to help control the supply that they have to manage.

Would you expect if there was such a decline in Class I consumption, that instead of putting milk into IV, they might tighten up their supply to help mitigate that? Is that -- I mean, I'm just looking at other considerations to look at other than all this milk goes in Class IV.

A. Yeah. I'd hate to speculate on what cooperatives might do. I do think if you -- yeah, I guess it's a possibility, if -- if cooperatives are trying to feel like they have too much milk, that they might -- it's feasible to me that they might reinstitute or institute or expand base/excess plants.

Q. Okay. And on your slide 29 -- let's see. I wanted to talk about your elasticity assumptions you made.

And in some discussions with, I think, Mr. Sleper, you said that you wanted your elasticities to account or exports since that's where a lot of the powder goes, which is why you didn't use elasticities maybe that other studies have used.

And you did talk about ERS, and we did look that up, and that elasticity for dry milk products is negative .124. And the one Dr. Brown testified in his study he used was negative 0.13. And you talked about how those are elasticities for domestic demand of powder, which makes sense. But you tried to choose -- you say that the ones in your studies are plausible based on exports.

And I just wanted to know why you think those are plausible. Those are certainly significantly different than the numbers in these other two studies. And so kind of why should we look at those and say, yep, those are plausible ones to assume?

A. I think of this -- I think of it this way, right? If -- if the U.S. increased nonfat dry milk by 7%, right, as I estimate here, 7.6%, do I think that the effect on global nonfat dry milk prices would be 30%? That would be the effect of applying a demand elasticity for nonfat dry milk of minus .25. That's -- it's not plausible. We have seen change -- variation in nonfat -- U.S. nonfat dry milk prices in the past, and we don't see those types of effects on global prices of nonfat dry milk. So I think larger elasticities that account for this -- this -- the large export market makes sense for nonfat dry milk.

Q. Yeah, I don't know if I followed the math, a 7.6 increase in nonfat dry milk to I think you said a 25% increase in --

A. So if you -- if you have the -- if you know the quantity and the percentage change in the quantity, you divide by the elasticity to get the change in the price. Right? So in my case, I'm -- I have got a quantity -- percentage change of 7.6, right, 7.6% increase. If the demand elasticity is minus .25, I divide by a quarter, which is the same as multiplying by four, and I get a 30% decrease in the price. Right? And it's just not --

Q. So --

A. I don't think anyone here -- all of you know dairy -- believe that that's within the realm of possibility.

Q. I think we probably would agree with that.

But I just want to make sure. You said .25, and maybe you are pulling that from somewhere else. I always need to make sure the math is correct. I see a negative .25 on your elasticity for butter.

A. Yeah, I -- you -- you cited an elasticity from ERS of minus --

Q. 1.24.

A. -- minus point --

Q. Minus.124.

A. Yeah. And I used .25 because it's easier to divide by a quarter than it is to divide by .124 --

Q. Okay.

A. -- if that makes sense.
Q. It does.
A. Yep.
Q. If we don't ask you the math now, then I'll never figure it out back in DC.
A. So if you applied that elasticity of minus .124, right? I actually think then you will get double --
Q. You are right, okay.
A. -- the price effect. And that's -- that's -- I don't -- I don't think ERS is saying that either, right? They have trade equations in there. So somewhere in that model there's an implied -- implied total demand elasticity for U.S. nonfat dry milk, and that would be the number, I think, that's relevant. But I -- they don't publish that number.
Q. Okay. If I wanted to look at a price change for powder, I would take -- under your numbers -- 7.6% divided by negative 4, in the first example, and I would get a price change of 1.92%. Okay.
A. Correct.
Q. Thank you. That's helpful.
A. I'm sorry that's confusing.
Q. I'm sure I don't help, honestly.
A. My undergraduate students have the same complaint when we talk about elasticities.
Q. And can you just walk us through then how you get your change in Federal Order skim price and Federal Order butterfat price?

A. Yes. So maybe it would be helpful to go to 435, the first un- -- the first unnumbered page, Excel spreadsheet at the back.

So starting on line 21, that's the quantity of diverted milk, 2.2 billion pounds, right?

Q. Uh-huh.

A. I take the fat out of that to calculate the quantity of skim that goes to nonfat dry milk. You see the elasticities there in green. And that gives me the net price change.

Follow?

Q. Yeah. I'm just curious, because you are using these elasticities that account for exports. The Federal Order is a domestic program.

Are those -- my undergraduate question to you is: Is that the right elasticity --

A. Oh, I did not mean to imply that you are like -- I'm sorry if I --

Q. It's okay.

A. I'm sorry. Say this again?

Q. You are using your elasticities that include your assumptions on exports, that accounted for exports?

A. To get a net change -- to get the change in the price of nonfat dry milk. Yes.

Q. Okay. I'll let you finish your math before I ask it.

A. So that gives me the minus 1.9 that we just saw in the slide that I was looking at.

Q. Uh-huh.

A. Right? So I take that change in the price of nonfat dry milk. If we flip over to the next page. And on line 45, I have a change in the skim milk price, which is that price change. So basically I take your formula, I -- if I recall, it's in the Excel spreadsheet, but it's -- I multiply that price change -- the change in the price of nonfat dry milk by .9 and then .99 again, right, to get the price -- the change in the price of skim -- in the skim price.

Q. Okay.

A. Does that make sense?

Q. My number crunchers are telling me they follow.

Is that per pound or per hundredweight?

A. So that is a --

Q. The --

A. The skim price would be per hundredweight.

Q. Okay. And the change in butterfat price would be per pound?

A. Correct.

Q. Then might I suggest we can make that change on the record copy to make sure the units are correct? And I'm looking at slide 29.

A. Slide 29. Slide 29?

Q. Yes. You have the negative $0.20 per pound.

A. That's correct.

THE COURT: So we're about to make a change on the record copy. We're in Exhibit 436, and we're on page 29.

And the line that we are going to is the "Change in FMMO Skim Price"?

MS. TAYLOR: Yes.

THE COURT: And where it says negative $0.20 per pound, is that what it's supposed to be, Doctor?

THE WITNESS: Should be minus $0.20 per c-weight.

MS. TAYLOR: CWT. And I think everywhere on that -- just that line, where it says pounds, should be CWT. So it would be a change in three different places.

THE WITNESS: Across that entire row, yes.

MS. TAYLOR: Yep. Across that row.

THE COURT: All right. So, Doctor, just to be sure the record's clear, I want you to read that row across.

THE WITNESS: This is slide 29, in the row labeled "Change in FMMO Skim Price," I have a value of minus $0.20 per hundredweight; moving over a column, a value of minus $0.10 per hundredweight; moving over to the right one more column, a value of minus $0.08 per hundredweight. I apologize.

THE COURT: No worries. I tell you, it is a treat to watch these people work.

And we need a break.

MS. TAYLOR: Well, I'm finished, so AMS has no more questions. So that's perfect.

THE COURT: You went out with a flourish.

Mr. Rosenbaum, let's take our break, and then we'll have you come back.

All right. Let's take -- do you want 15 or 10?

15. Please come back ready to go at 2:45.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 2:48.

MR. ROSENBAUM: Your Honor, at this time I would like to move Hearing Exhibits 435 and 436 into the record.

THE COURT: Is there any objection of the admission into evidence of Exhibit 435, which is also Exhibit IDFA-61?

There is none. Exhibit 435 is admitted into evidence.

(Thereafter, Exhibit Number 435 was received into evidence.)

THE COURT: Is there any objection to the admission into evidence of Exhibit 436, also shown as IDFA Exhibit 62?

There is none. Exhibit 436 is admitted into evidence.

(Thereafter, Exhibit Number 436 was received into evidence.)

THE COURT: And do you have further questions of this witness?

MR. ROSENBAUM: No, Your Honor.

I'm sorry, did you admit 435?

No further questions, Your Honor.

THE COURT: All right.

Ms. Hancock, do you wish to have admitted into

evidence Exhibit 437?

MS. HANCOCK: No, Your Honor. We were just referencing it. I think it is in the record for reference purposes, but he testified to it. That's fine. Thanks.

THE COURT: All right. Does anyone else want to move the admission of Exhibit 437?

I see no one does. Do we consider it withdrawn? I have to account for it in some manner. It's never -- it was never moved into evidence, so it's not withdrawn. What can I call it?

MS. HANCOCK: I just think it is noted. It is not admitted as evidence, but it is noted for the record.

THE COURT: Okay. Good. That's how we'll show it. 437 is noted, not moved into evidence. And we keep it -- we'll keep it as part of the record. It will show as those that are admitted, those that are rejected, and in this case, one that is merely noted, but it will not be considered part of the evidence. All right.

I take it no one else has questions for Dr. Balagtas?

Your work here is done. And I thank you. It's been extremely interesting testimony. I enjoyed it very much.

THE WITNESS: Thank you, Your Honor.

THE COURT: Who will be the next witness?

MR. ENGLISH: Good afternoon, Your Honor. My name is Chip English for the Milk Innovation Group.

Continuing in a spirit of witnesses that are not

technically mine, I am actually now calling Dr. Mark Stephenson to the stand, S-T-E-P-H-E-N-S-O-N. And I have a document that was sent to most of the parties and USDA yesterday around 8:30 in the morning to be marked as an exhibit, which is his testimony.

THE COURT: Very good. We'll go off record while you mark and distribute those.

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

We're back on record at 2:53.

I have before me Exhibit 438, also shown as Stephenson Exhibit 2.

(Thereafter, Exhibit Number 438 was marked for identification.)

THE COURT: Shall I swear in the witness?

MR. ENGLISH: Yes, Your Honor, please.

THE COURT: Dr. Stephenson, would you state and spell your name?

THE WITNESS: My name is Mark Stephenson, that's M-A-R-K, S-T-E-P-H-E-N-S-O-N.

THE COURT: Have you previously testified in this proceeding?

THE WITNESS: I have, Your Honor.

THE COURT: You remain sworn.

MARK STEPHENSON,

Having been previously sworn, was examined and testified as follows:

THE COURT: Mr. English.

DIRECT EXAMINATION

BY MR. ENGLISH:

Q. So, Dr. Stephenson, you're appearing today not on behalf of any party, correct?

A. That's correct.

Q. You do expect -- or at least I expect you to return sometime in January to testify on MIG 20, correct?

A. That's my understanding, sadly.

Q. Not sure how to take that, Doctor, but I assume it is because you are going to have to come back in January.

Today you are not testifying about MIG 20, correct?

A. No.

Q. Earlier in this proceeding Dr. Nicholson testified and provided information about what is known as the USDSS model, correct?

A. That's correct.

Q. And you happened to tune in and watch on that particular day, correct?

A. I did. Yes.

Q. And you noted that on more than one occasion Dr. Nicholson suggested that you might have information to add to the record, correct?

A. That's correct.

Q. And since that time, you have also periodically listened in and from time to time you have heard that somebody from industry or USDA might have further questions of you about the USDSS model, correct?

A. I have heard that, yes. And I did come here, Mr. English, to answer some of those questions, and I have tried to put my comments here today in the form of bullet points that address some of those that I have heard. And I'm certainly willing to answer any questions we have about the model.

Q. And with that introduction, Your Honor, I am perfectly happy to have Dr. Stephenson take over, and I will sit down.

THE COURT: All right.

I think it's wonderful that you are willing to do this. So many questions have been to what extent what factors are in the model.

THE WITNESS: Uh-huh.

THE COURT: So I appreciate very much your coming.

THE WITNESS: Well, I'm -- I'm happy to do that, and I think that people should know, absolutely, what is in the model, what is not in the model, and, you know, to try to capture the understanding about what these results really are what they imply. So I will talk about that.

And my comments, they're in the form of bullet points rather than just a written narrative, but I will read them nonetheless.

The USDSS, which is our acronym for the United States Dairy Sector Stimulator, is a large and computationally complex model which solves a very simple task: Assemble milk at farms and move it to plants to be manufactured into dairy products that are distributed to

consumers across the 48 states.

The model is constrained by the location of milk production and the volume and components at the county level. A few states, such as Wisconsin and California, report milk production at the county level, but most states don't. We estimate county milk production for states that don't report by using the National Ag Statistic Service ag census data for dairy cow numbers at the county level, and we apportion the NASS state milk production using those.

The USDSS accounts for component levels, which vary by region. NASS reports butterfat at the state level, and that butterfat is used in the counties within the state. Protein and other solids levels are estimated using the FMMO data to establish a relationship between butterfat and another components. We use regression analyses employed to estimate the other component levels. And as a final check on milk volumes and components, state and national totals are calculated and calibrated to be precisely equal to the NASS data for the month and year of interest.

Dairy product processing is constrained by actual plant locations, the approximate size or capacity of the plants, and the products produced there. A proprietary database of these plants is maintained and updated with popular press news items, Federal Milk Marketing Orders, Pasteurized Milk Ordinance, AMS, and personal communication with industry participants. The plant

capacity values that we do have, and that's for a little more than half of the plants, account for about 90% of the NASS milk volume in the 48 states. So we don't have capacity estimates for every plant, but we do have them for the majority of the larger plants.

Dairy products are constrained by the components required for their manufacture. We have established an extensive spreadsheet which details final product components and the make procedure which produces them from either raw milk or intermediate dairy products, such as cream, skim, condensed, filtered milks in various forms, and skim or nonfat dry milk powder.

Domestic and export use of final products are distributed to the counties of the 48 states or ports for overseas shipments. The volume of these products are constrained to the volumes sold to consumption -- that's what we might call demand at locations -- or exported through those ports. We utilize per capita demand as calculated by the Economic Research Service and multiply the county -- by the county population.

In previous iterations of the model, ERS had done per capita demand estimates by region, by state, and ethnic strata. That hasn't been updated in many years, so we are now using just a national per capita value.

THE COURT: Let me ask you, "in previous iterations," would you read that sentence again?

THE WITNESS: Sure.

In previous iterations of the model -- and maybe

parenthetically I should mention that we have been building this model over a 30-year time period, so we have had less sophisticated versions of the model, and today it is, we think, relatively sophisticated.

But at any rate, in previous iterations of the model, ERS had done per capita demand estimates by region, age, and ethnic strata. That hasn't been updated in many years, so now we're using just the national per capita average value.

However, California has higher solids nonfat standards for lowfat milk, and we enforce that standard on fluid sales in that state. We also have data from AMS which indicates variable preferences for butterfat content in fluid milk by region, and we also utilize that in our estimates.

Transportation associated with raw milk assembly, final product distribution, or interplant shipments are constrained to take place by the shortest distance over actual road networks. This is not the shortest distance calculated by "the great arc" of the earth, but rather the actual miles that a truck must travel over named roads. There are in our model 9,436,323 of these arcs or roads that the model can traverse, which connects all geographic points in the model.

The cost of transportation is calculated using a highly detailed economic engineering model. The model begins with a concept of a hauling firm, which describes their vehicle fleet of both active and reserve trucks.

Fuel, oil, tire, and interest rate costs per unit are also accounted for. It also cost accounts for overhead maintenance of the fleet.

Individual tractor values are identified, such as how many axles, or tires, type of fuel, unloaded and loaded mileage on those trucks, insurance, fees, et cetera. Tanks on street chassis trucks and trailers pulled by tractors are similarly input. Employees are identified, and their wage and overtime, if applicable, rates, as well as benefits are accounted for.

From the individual data -- and I should say firm data there -- various routes are assembled which must use one of the trucks (a tractor-trailer or a straight chassis), one of the employees, and it describes the route: As in how far from the firm to the first farm? How many farms will be loaded on that route before the truck is full? What distance and how long does it take to get from the first farm to the last farm on that route? What distance and time does it take to get from the last farm to the plant? How long does it take to unload and wash the tank? And how long does it take to get back to the garage? Does this truck and/or driver, make more than one route in a day? Are there any tolls or fees along that route? Does the loaded truck switch drivers or tanks? Overtime pay is calculated for any employee on a route that exceeds the normal workday time.

We sample from a variety of the engineered firms, including small one- and two-truck haulers to very large

fleets. We also assemble a variety of routes from multiple small farm pickups to switching trailers at very large farms. We also look at short routes close to plants, to longer haul routes with a distant plant. We also calculate plant-to-plant hauls of intermediate products, like cream or skim milk, and we can look at distribution costs from plants to population centers.

Dozens of our example route costs are used to estimate a nonlinear function of hauling costs per mile based on the length of the route, driver wages, and fuel costs per gallon.

As I mentioned before, those items, the wages and fuel costs per gallon, can, and do, vary by region of the country.

Cost of transportation differs for bulk raw milk or fluid intermediate product, refrigerated, and unrefrigerated trailers. Costs differ regionally by fuel and labor wages. Road weight limits are restricted to the most constrained state that the route passes through.

For example, Michigan has the least restrictive weight limits, and it allows gross vehicle weight of 164,000 pounds. However, if the truck passes from Michigan into Indiana or Ohio, the gross vehicle weight is now restricted to those state limits of 129,400 pounds. If the truck further passes into Illinois or Pennsylvania, their gross vehicle weight limit is only 80,000 pounds. The model can take a cost advantage of the supertankers within a state like Michigan and other high-gross vehicle

weight states, but if the route crosses into a more restricted state, then that more restricted state's limit becomes the limiting weight.

The model's task -- and this is in bold in here -- is to minimize the costs of milk assembly, dairy product processing, and final product distribution while respecting all of the constraints.

Just as a side note, cost minimization yields the same outcome as profit maximization in a perfectly competitive market.

The model's primary solution is one of physical flows, as in X pounds of milk were shipped to plant Y and made into Z pounds of that product, A, which was then distributed to distribution points or consumption points, I and J. This is referred to as the "primal" solution.

An optimization model like the USDSS can also express the "dual" solution, which is in terms of dollars. A dual, sometimes called a "shadow price," really tells us how much could be saved if a constraint was relaxed by one unit.

If you think about a fluid plant, you could ask, how much would the next 100 pounds of milk at that location be worth if it just showed up at the plant? That relaxed constraint may let the model move milk and dairy products around the country in a different way that saves the entire system some money. That is what the dual values are at fluid plants, that's what they are reflecting.

Another interpretation of that dual is "at what price would the processor at that location be indifferent to receiving the next hundredweight of milk"? If you were asking more than that amount, the model knows that it could go elsewhere and procure milk from another source for less cost.

A shadow price is calculated for any constrained value in the model. We are usually only reporting on the values at Class I fluid plants, but there are also values for the other classes. Further, there are dual values for farm milk at all locations.

It should be noted that these dual values will be qualitatively related, but not equal across the country or even within proximity to one another across different constraints. That is, farm value of milk will be somewhat different to a nearby plant value for milk based on what the model can do with another unit.

The optimization model can only report dual values at points of constraint. For example, Class I dual values are only calculated at fluid milk plants. Values in locations where there is no fluid plants are being estimated post-processing model solution with a geographic interpolation known as "Kriging," or a Gaussian process regression. A raster image --

THE COURT: Could you stop and spell those terms for us?

THE WITNESS: I would. Kriging is named after the man who invented the process called Kriging,

K-R-I-G-I-N-G. And Gaussian process regression is G-A-U-S-S-I-A-N, P-R-O-C-E-S-S, R-E-G-R-E-S-S-I-O-N.

A raster image is --

THE COURT: And, again, help us with that.

THE WITNESS: Sure. A raster is spelled R-A-S-T-E-R, which is just an infinite number of points in an area that can be differentiated by color. When we see things like heat maps for temperature differences and things like those, those are raster maps.

A raster image is created which estimates a weighted value from the nearest 12 points (known as the dual values at Class I plants). This value is weighted by distance from the point of interest. The smooth surface (commonly referred to as a "heat map") can then be outlined by isoclines -- that's I-S-O-C-L-I-N-E-S -- which are lines of equal value, or the values of the raster can be projected back down onto a geographic area, like a county, and the average of those values can be calculated.

That's what we are doing, the county values, and rounding them to the nearest $0.10. This also explains why we might not see the minimum value reported in the county values that were attached to Dr. Nicholson's documentation, because the average of the raster points -- one of them will contain a zero value -- but the average of the entire county may not average to zero, but might round to $0.10. We then add a fixed value, as specified by the group asking for the model values, to get our Class I values. In recent years, that amount has been

$1.60.

We do try to be responsive to the concerns and observations of the folks looking at model results. It has been these comments that have pushed us to refine the model over the last 30 years. For example, recently, in these model runs, it was observed that the spatial values in Michigan seem as though they wouldn't move milk in the way it was needed.

Further reflection of the USDSS plant shadow prices appeared as expected, but the county interpolation values were not. We realized that the Kriging algorithm was using points in Western New York and in Wisconsin as being the nearest 12 plant locations. The Great Lakes are not navigable by tanker truck, and we needed to make a change to our post-processing estimate. This was done by constructing a geographic fence down the Great Lakes that the Kriging algorithm must go around. When that was done, Michigan's county values looked appropriate, and our thanks go to that NMPF committee for pointing out a shortcoming of the model, which has now been corrected.

Any model is a simplification of reality, but in my opinion, the USDSS model is the most complete and systematic means that we have of considering spatial milk values across the country. We have been developing this model for more than 30 years. Over that time we have refined the model and made it much more sophisticated, and we have addressed concerns that folks have expressed through many iterations.

For instance, the model now accounts for milk and dairy products at the component level and not at the milk equivalent value that it was originally built around. The cost of transportation are quite detailed and include things like tires and insurance, capital replacements, fees, et cetera, as well as fuel and labor that differ by region of the country.

If we're going to have questions or concerns about the model results, we need to talk about the inadequacies of the model structure or about the quality of the data that was used in the model. The rest of the results are just math, which I believe are being done correctly.

The model does not include items such as restriction of bridges and tunnels during certain hours of the day. This can add legitimate cost to servicing an area like New York City. We have not incorporated instances like the bridge and tunnel example because the added complexity may not be worth the effort. But this is a place where professional judgments might be made that would supersede model results, and this kind of price alignment may alter the dual values by nickels, dimes, or possibly quarters over small areas.

The model could be further refined in many ways. Currently we identify 20 final dairy products and 11 intermediate products, dairy products that can be used in the manufacture of other final dairy products. Our fluid milk category include both conventional fluid products, as well as other products like organic, A2, lactose-reduced,

et cetera. These could further be broken out into separate products, but the Federal Milk Marketing Order recognizes all of these as Class I, and hence, our aggregation into the one category.

There are other items that the model does not consider, including the Federal Milk Marketing Order regulation itself. There are important reasons why the model does not, and we believe should not, consider this regulatory system. The USDSS was designed to inform about an efficient marketplace, oftentimes for the purposes of developing regulations themselves. Imposing those regulations on the model could cause a departure from market efficiency, which is not the stated goal of Federal Orders.

Larger value changes imposed over larger regions suggest a significant shortcoming in the model structure or data. Such shortcomings should be brought to the attention of the researchers for correction in current or future model use. We have gladly and willingly considered changes in the past which have resulted in improvements employed in the present model iteration.

If we were requested to rerun the model with larger value changes imposed over larger regions, we would need to understand the reasons for the change so we could adjustment the model to assign this additional cost. We also would want to run the model with those changes so that we could ensure the surrounding counties and states adjust appropriately to changes in a certain area. We

have not been asked to do that.

The USDSS model results in an "efficient" market. That is, milk movements are optimal to achieve the lowest cost to the system. Any market will have some friction which results in departure from the optimal solution. This can happen when there are contractual obligations between parties which move milk from regions to plant where the model would rather access other supply locations.

In my opinion, the price surface represented by regulation should reflect an efficient market and not have market inefficiencies hardwired into them. A minimum price regulation allows higher prices to accommodate inefficiencies while encouraging and rewarding movement toward a more efficient solution.

The price surface of the USDSS model reflects an economic current which is analogous to an ocean current. It's possible to move against the current, but it's more difficult, and the current will try to move product in a market efficient direct.

Price differences from any two points in the model will not cover full cost of transportation. If price incentives greater than full costs occur in the model, then more milk than is needed would be enticed to move to capture the rewards. The price surface reflects incentives to move milk in the direction of greatest need.

Just as a thought experiment, consider a farm that is located 100 miles from two processing plants: One of

the plants is west of the farm and one is southeast of the farm. The 100-mile hauling charge is the same to supply either plant, but the plant to the west has a zone price that is $3, and the plant to the southeast has a zone price that is $3.10. The farm should choose to sell milk to the southeast plant to net a larger price. This moves milk in the efficient market direction.

Contractual obligations that move milk in a non-optimal or non-market efficient way can and do happen. This is not disallowed in Federal Milk Marketing Orders, but in my opinion, it shouldn't be encouraged either. At a micro level, there's been a criticism of multiple milk haulers driving past farms, carrying milk from farms to plants. The additional cost to the system for this behavior has been voluntarily reduced by swapping farm milk loads going to plants and only having a single hauler traversing the roads. If the original contractual relationship had been reinforced in the regulations, the firms would not have had the incentive to find more efficient solution of doing a swap. Market inefficiencies can and do move toward a more efficient market with economic incentives. Without incentives, the markets will not achieve efficient milk movements.

Dr. Nicholson and I have worked hard to provide a sophisticated and detailed analysis of efficient milk and dairy product flow movements that I hope will be of use to the participants in the industry in this proceeding. I would be happy to answer any questions or provide any

further insights into the model's design and outputs so it can be of the highest possible use for these proceedings.

THE COURT: That is excellent, and I would like a five-minute stretch break before we begin questions.

So please be back and ready to go at, let's see, 5:28 -- I mean, 3:28. 3:28.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 3:28.

Who first has questions?

CROSS-EXAMINATION

BY MR. ROSENBAUM:

Q. Steve Rosenbaum for the International Dairy Foods Association.

Good afternoon, Dr. Stephenson.

A. Good afternoon.

Q. You and I may both be of enough the same age so that we remember the Prego spaghetti sauce commercials from about 30 years ago, where the question was always, "Well, what about tomatoes? It's in there. What about X? It's in there, it's in there." So I'm going to ask you about a bunch of questions about your model, and you can tell me, yeah, it's in there, so --

A. Or I might not.

Q. Or you might not, is the -- exactly. Well, that's the question, that's why I'm asking the questions. I really just have a couple.

I know that there have been restrictions placed as

to how many miles or hours -- I think actually, it's not miles -- hours truck drivers can drive.

Is that included in your model, those constraints?

A. When we do the economic engineering of the hauling costs, which is an input to the optimization model, we do include that type of thing. So there is a place in that economic engineering framework where we can say that a milk load is assembled and maybe hauled to a different point and the driver is switched out. So we know that that happens with drivers, and so we have example routes that -- that do have that kind of thing occurring.

Q. Okay. And then what about -- I assume you don't -- the model doesn't assume that the milk gets unloaded instantaneously when a truck shows up at the plant.

Is there some time, in fact, that's built in for that?

A. There is. And I think I mentioned that in here, that one of the questions that when we're assembling those routes is, how long does it take you at the plant to unload and be washed? So, you know, there's leaving from the last farm to the plant, how far is it? How long does that take? And then there's, how long are you at the plant before you get turned around and that truck is capable of being reused for perhaps a second route that day, or just back to the garage?

MR. ROSENBAUM: That's all I have. Thank you.

THE COURT: Who goes next?

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Good afternoon, Dr. Stephenson.

A. Good afternoon.

Q. My name is Ryan Miltner. I represent Select Milk Producers.

You made a reference to the base differential, or, as you say on page 4, "A fixed value as specified by the group asking for the model values to get Class I values."

In recent years that amount has been $1.60. When you -- in your referring to in recent years, does that include the model run that was presented by National Milk for their Proposal 19?

A. I believe that in the spreadsheets, it may be this very large one that's here, there are a couple of columns that say USDSS May results and October results. Those do include the $1.60.

Q. So if in those columns that show USDSS results, if the lowest number is $2.20, does that mean that the model has a value of at least $0.60 at every point?

A. No. We -- we added $1.60 as a uniform price to the shadow prices everywhere. There will be at one or more locations a zero shadow price value. That simply reflects the fact that the model can't do anything with the additional milk at this location, it has no extra value to the model. So in our USDSS results, the smallest amount value that you should expect to see there is $1.60.

But the 2.20 that you are suggesting, those were

the price alignment results, I believe, that had come from the National Milk committee.

Q. Do you recall off the top of your head where you would expect to see the $1.60 values, or the zones where there essentially was no incremental value?

A. Yeah. You can imagine that those locations are going to be in places where there's a fair amount of milk and not much population. If I remember correctly, we had a location like that in Idaho, and we had a location like that in North Dakota, I believe. I'd have to go back to look to make sure.

Q. Okay.

A. If you look actually in that large table of results, in one of the months, the smallest value that you find is not $1.60, it's actually $1.70. And I did try to explain that in here, because the model actually gives us infinitesimally small point values. So at some point in a county there is $1.60 value or a zero shadow price value at that location, but by the time the Kriging algorithm finds the 12 closest plants to that and does its interpolation, it may round to an additional dime.

Q. I wrote myself a question here, and I can read the words, but I don't know what I'm trying to convey.

THE COURT: If I might just ask?

MR. MILTNER: Please.

THE COURT: Are 12 closest plants always used even if one suffices?

THE WITNESS: We always look for 12 closest plants

to fill in the areas where there is no plant. The Kriging algorithm provides weighted average values. So, for example, you're closer to me than Ryan is, and it would give you greater Kriging, as that should be the case, than it would Ryan.

THE COURT: And that's a good explanation.

BY MR. MILTNER:

Q. Now, what if we were at the previous location where my podium might have been closer to you than the judge?

A. You could aspire to judgeship.

Q. That I could.

And I have since figured out what I want to ask.

Before I get to that, on page 5, and a few other places throughout here, you -- you are using a -- you are referring to "we" working in the model.

And is that just broadly speaking, you and anyone else that's working with you on the model, including perhaps Dr. Nicholson, or was there something else you are conveying there?

A. Dr. Nicholson and I have exclusively worked on this round of the model. In times past, we have had graduate students that have also worked on different aspects of the model, but, you know, it's been the two of us primarily this time.

Now, I shouldn't say that. I have also had the benefit of working with geographers who helped us to do mass calculations of road distance networks, that when we

went from a multi-county area to individual county areas, it was a great mushrooming of the data that were there. So they provided help to us in terms of understanding how to do that with the software, but they didn't do the calculations.

Q. Thank you.

When the model was first developed and utilized during order reform, during that notice and comment rulemaking phase?

A. Before that, we had aspects of the model. There existed a Northeast Dairy Sector Simulator before we had the U.S.-wide one. But the U.S.-wide one was built and constructed for the Federal Order Reform in that 1998 to 2000 time period.

Q. And during the Federal Order Reform process, there's some language in the Federal Register that explains, I would say in very broad terms, that the model results were adjusted by USDA to reflect certain -- certain things. Certain witnesses throughout the course of the hearing have testified about that.

And I wondered if you are able to shed any light on what specifically was changed in order reform between the model's results and the differentials we ended up with?

A. The changes that were made were done internally. For example, National Milk had their room of folks or, you know, by regions, that assembled their professional judgment, you know, to make the changes here. In Federal

Order Reform, USDA had their group that did that. And so it was a group of -- internally to AMS that made the changes to the model structure last time.

And, you know, those were relatively small changes in there. But, you know, again, I always suggest that professional judgment will or may need to be used in some locations to capture things that the model simply didn't capture and wasn't built to capture.

Q. Do you have an opinion as to whether the changes that happened during order reform between the model and regulation, how that looks compared to the changes between the model run and what we have in Proposal 19, if there's a similarity in magnitude or effect?

A. Ryan, are you talking about what we actually did versus what is being proposed in 19, or are you asking me to go back to 2000 model results and make comparisons?

Q. I suppose I'm asking a little bit of both. And what I want to ask is, the changes between the model run, which was used as the base for Proposal 19, and what Proposal 19 looks like, are those changes similar in magnitude to the type of adjustments that were made during order reform?

A. Oh, boy. I don't really recall the magnitude of all the changes that were made back in order reform. But it was my memory that, you know, they were relatively small changes, as I said, something like nickels, dimes, quarters, and they were in places where a Market Administrator simply said, there's something here that

wasn't considered in the model that really ought to be considered.

And, you know, the example I used of New York City bridges and tunnels and restricted times of deliveries, those kind of things can and will make real dollar differences to the transportation issues that you have in some areas.

Q. You also noted there have been a number of improvements to your model since it was first rolled out, I suppose, and now. And you believe it is more accurate today, correct?

A. Yes.

Q. Do you believe that a -- I'll call it a raw model run to optimize for milk movement today is a more accurate reflection of absolute efficiency than you would have achieved in 1999, per se?

A. Yes. There's no question about that in my mind. A good example was, back at that point in time, the model solved in terms of milk equivalents, it didn't have components.

And the other thing to recognize is that because of that, you had places where you had to have surplus components and just recognize that we were going to freely dispose of them in that area. You had to have more than was needed or the model wouldn't solve. And when we achieved that, then there would always be a small amount of surplus in some regions.

What we were able to do, and this happened after

model reform, before -- we got down to the component level and we said, we have to mass balance and account for components at the farm and the plant and the finished product level. So we now have about 2% surplus, which doesn't have to be there, it just is, but that's about what we -- and it's a little different, 2% for fat and a little less than that for solids nonfat. But that's what we attribute to shrink in the system.

Q. And so when you are doing that type of mass balancing, I assume that also helps to take into account the effective capacities of the plants that are in the model?

A. Yes. We have what we assume are the plant capacities from our knowledge. Now, we don't have intimate knowledge, you know, of every plant, but we have our own point estimates of what we think that plant is capable of doing, and we give it a plus or minus 10% on each plant. So that plant can process a little bit more than our point estimate is or we can constrain it so that it must be at least that 10% lower value or above.

We also have, as I said, a number of plants where we don't have capacity knowledge, but that's only about 10% of milk volume that's unaccounted for in the U.S., and we let the model choose the plant location as long as it can make the products that are needed there at the sizes that are necessary.

MR. MILTNER: Thank you very much, Dr. Stephenson.

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CROSS-EXAMINATION

BY MS. HANCOCK:

Q. Good afternoon, Dr. Stephenson.

A. Good afternoon.

Q. Did you --

THE COURT: I know he knows who you are, but I'd like you to identify yourself for the transcript.

MS. HANCOCK: Nicole Hancock with National Milk.

BY MS. HANCOCK:

Q. Did you work with Dr. Nicholson in compiling this document?

A. In compiling his?

Q. In compiling Exhibit 438.

A. No, not specifically. Although I did author the document that was given to National Milk Producers Federation.

Q. For Dr. Nicholson?

A. Yes.

Q. And you didn't include this in that document that was used?

A. With this document here?

Q. Right, these details.

A. Not all the details were probably there. And that -- I had heard questions about a number of these from observing on the Zoom conferences that we have had available to us, and so I tried to make bullet points of those things which appeared to be coming up again.

Q. Okay. And you listened to Dr. Nicholson's

testimony?

A. I did.

Q. Okay. How come you didn't vet this with him before you finalized it?

A. Well, first of all, there are a number of the things that, as Dr. Nicholson indicated, you would have to ask Mark, for instance, those would be such things as the cost of transportation portions of it, the Kriging algorithms, those types of things. The mapping that was done.

Dr. Nicholson, I felt, did a very good job of explaining the basic construct of the model and what was run and done. But most of these were things that was not in Dr. Nicholson's testimony and were the kind of questions that have been reflected back to me.

Q. Okay. And is there anything that you can recall that Dr. Nicholson testified to when you were listening that was inaccurate or incomplete, other than the items that he referred to you?

A. Not much. There was one thing that I thought, "Chuck, you probably better check the data on that," that he had referred to, but that's with future testimony and not with current.

Q. What was that pertaining to?

A. He had talked about the fact that shadow prices he felt should be close to the same at the same location. And in point of fact, when you go in and take a look at the data from the model runs, they can be different and by

a fair amount.

Q. Okay. And that just depends on the location and the factors that go into establishing that spatial difference?

A. And the products and -- and just a host of other things. But, yes, you are correct.

Q. Okay. And you -- you said that you're here today, you are wearing a neutral hat; is that fair?

A. Yes.

Q. What does that mean?

A. Pardon, what does --

Q. Yeah, what does that mean, that today you are neutral?

A. Well, when -- I come here, I don't want to be a proponent of any one proposal or not unless I'm explicitly saying that that's the case.

When I have come to testify on Make Allowances, for example, or on something like this, this is to provide what I think are questions, answers to questions that people may have from work that we have done. I'm not a proponent or an opponent of any of the proposals that have been here.

Q. Okay. And you contrasted that with when you testified on Make Allowance.

Is that because in that role you were being paid by IDFA?

A. Yeah. You -- I can ask for compensation, I feel. But, you know, if you had a particular desire for any

answer, I will never guarantee somebody that. I will guarantee that I will do the work and I will provide you with -- with an answer, and you can decide if that's what you want to use or not.

Q. And I appreciate that. I recall when we had the examination on Make Allowance that you were very transparent, even to the detriment of IDFA, so I appreciate that.

My question, though, was I was just clarifying when you said today you are neutral, is that -- did you mean that it's because today you are not being paid by anyone to be here?

A. No. Although, I could hope on my poor fixed retirement income that maybe my mileage and room is picked up.

Q. And who would you expect to pick that up for you?

A. I would expect the MIF group to pick that up.

Q. Is that MIG?

A. Or MIG, sorry about that, yes.

Q. That's okay.

And, in fact, Mr. English's -- his law firm is the one that submitted your testimony for you; is that right?

A. Yes.

Q. Okay. I want to ask just a couple questions so I'm clear on this.

The hours that Mr. Rosenbaum just asked you about, you said that the model does account for the limitations on a driver's number of hours.

Do you recall that?

A. Yes.

Q. And you said yes. And if they -- if it -- if it looks like they are going to exceed, then it picks up a new driver; is that right?

A. We have routes that are modeled that are multiple driver routes. So, yes, that's correct.

Q. And that doesn't take into account things like traffic congestion, does it?

A. No, it doesn't.

Q. And it doesn't take into account things like weather events that might stop a truck from proceeding but burn up some time for a driver?

A. No, it doesn't account for any of those possible one-off events. We try to account for what we think whatever, in air quotes, "normal" might be.

Q. And it doesn't account for things like labor shortages or drivers being unwilling or unavailable to be hired for different roles to transport milk, does it?

A. Not directly. Although we did see a pretty substantial increase in driver wages with the 2021 data that we had in here, and part of this was just trying to attract over-the-road truckers, you know, milk haulers, that wage rates increased fairly substantially from previous times we have run the model.

Q. And it doesn't account for the Federal Order regulations?

A. No, it doesn't.

Q. It doesn't account for commercial relationships that exist, such as contracts where milk is required to be delivered to a farther away plant?

A. No, it doesn't do that. It -- it -- it will absolutely meet the needs of consumers by processing all the dairy products that we think are being demanded and consumed, and it will source that from milk from farms and run that through plants. But, no, we -- we do not identify those relationships.

Q. And it doesn't -- it doesn't account for plant efficiencies or inefficiencies either, does it?

A. It doesn't. We do have some scale efficiencies in the plants. So in our observations over the years of plant costs of processing, we do see that larger plants tend to have lower costs, but that's not absolute. We have some small plants that are very competitive, and the large plants that probably could improve.

Q. And it's not just the cost built into those efficiencies, but also the effect that that would have on the volumes that the plant can take in as well and process?

A. Well, again, we -- we try to respect -- first of all, we don't make any decisions about how much milk is produced and where. We take that as a given, a starting point, that dairy farmers have made their decisions about where their farm is located and how much milk they produce. That's given. We don't take consumer demand as a calculated value, we take that as observed. And we do

the same thing with plants. Their locations, products produced, and the approximate capacities of at least half the plants.

Q. Okay. And it's fair to say that those kind of boots-on-the-ground experiences that would deviate from the most efficient movement of milk would be a relevant experience to overlay the model results?

A. Well, I have to be a little careful about that. You know, I guess the qualifications that you are making there, I try to give some examples that I think, I believe personally, that what we want to do with regulation is to provide a goal that needs to be strived toward, not easily accomplished, that these minimum prices should move milk in the direction where it's most needed, not compensate 100% of the movements or necessarily respect those price relationships, that if you are having to, as I phrased in the document, swim a bit against the current, you know, to get there, that over time we hope that that current probably moves you toward a more efficient market and proper movements.

This model does accomplish all of the needs of dairy product consumption and moving milk from farms to plants to accomplish that.

Q. In the most efficient way possible.

A. In the most efficient way possible.

Q. And -- and that also assumes full truckloads of milk?

A. It does assume full truckloads of milk, or at

least weight limit truckloads, yes.

Q. And the -- and which would mean if there's multiple stops on a route, the commingling of milk between various farms as well?

A. That's correct. That -- if -- I'm trying to recall what one of the routes is. I think we have a seven-farm pickup that I might just call hilly route or something, because it -- it takes the better part of the day to pick up that route and to get it to the plant to do that. So, I mean, it's not a terribly efficient route, but it's a route that has to happen.

Q. And you've actually talked about that, that you have to use some of your professional judgments when you are looking at these model results, and you said that it can alter those values by nickels, dimes, and possibly quarters; is that right?

A. Sure. I think that there are going to be places where you could very well say the model was not sophisticated enough to incorporate this particular problem that we have in an area, and, you know, we need to account for that.

But as I also mentioned, that if the problem is large and systemic, I would really want to know about it, because I do think that the model should try to capture that stuff. It's awfully difficult for our humanness to sit down with data and I think try to draw these things or to try to make efficient routes.

We do what we do a lot of the time because it's

what we have been doing, not necessarily what -- what we ought to do.

MS. HANCOCK: Thank you for your time. Appreciate it.

THE WITNESS: You're welcome.

THE COURT: Mr. English.

REDIRECT EXAMINATION

BY MR. ENGLISH:

Q. Dr. Stephenson, I have just a couple questions.

THE COURT: Please identify yourself, even though we all know who you are.

MR. ENGLISH: I am Chip English for the Milk Innovation Group. I thought about saying something funny, but I couldn't come up with it.

BY MR. ENGLISH:

Q. So I want -- I just want to do a little math for a second, and this has to do with the number of plants, and then on page 1 you talk about the plant capacity you have represents, I think you said 90% of NASS milk volume in the 48 states.

But you said you think you have 50% of the plants, correct?

A. Correct.

Q. But if 50% of the plants represent 90% of the NASS milk, then 50% of the plants you don't have then represents the 10%?

A. Yes. And, you know, I'm going to allow that the volume that we have on those plants that I say account for

90%, that's at our midpoint estimate on each of those plants, and we do allow the plants to -- when we're doing this, to be constrained plus or minus 10% from that.

Q. Thank you.

So then one other set of questions, or one question. Earlier this week I asked some questions of a witness from Michigan Milk Producers Association, and he didn't know, or at least wasn't able to answer, I think, the question of whether you and Dr. Nicholson consulted with Michigan Milk Producers Association about closed plants and new Class I or II operations.

Do you have any information on that issue?

A. We -- we did. We got a document from the National Milk Producers group that had gone through our plant list and had identified a number of changes that they felt should be made.

And in Michigan, I don't remember the names of all the plants, but there was one producer dealer, a relatively small operation, and two relatively small ice cream operators that -- that were added to the list as a result.

Q. Thank you.

MR. ENGLISH: That's all I have.

THE COURT: Dr. Stephenson, what number of shifts do you assume the plants utilize, and what days of the week do you assume they work, or does that matter for the model?

THE WITNESS: It -- it doesn't matter as much for

the model, because the model is -- is solving for a one-month observation. So we take the milk production in the month, in this case May or October, and the demands that we estimate for that -- those two months.

I should also say that one of the other items that is a part of this model is the change in stocks, dairy product stocks, too, because in that spring period of the year, typically our stocks build, in the fall of the year we draw on them. So those are additional supplies, I guess, you could call them.

But when you are thinking about a monthly model looking at those plants, we have an idea about how many days a week those are processing, and sometimes about, you know, the shifts. But that's -- that's just information that we have that is not used in the model calculations.

What we do have is a weekly processing number for each plant, and we then multiply that to get up to the monthly value that the plant can process.

THE COURT: Did you hear the testimony about certain processors wanting each load of milk delivered to them to come from a single source from one farm because that's how the customer wants to observe quality of milk?

THE WITNESS: No, I wasn't listening on that day. I do know that that kind of thing does happen. And, you know, the plants that are doing some maybe co-packing or something may also have to be sure that we run this milk that's coming in the first thing on Monday, you know, when we're starting the plant up, and after that we run our

more conventional milks. Those are added costs in a plant as well, but we don't account for those.

THE COURT: There were a number of questions about how much of the increased feed costs are in the model. I have no idea what all feed costs are, but there was uniform recognition that feed costs have escalated lately.

THE WITNESS: Yes. It's my understanding that they have as well. But I can tell you with certainty that there are zero feed costs in the model.

We don't try to calculate what supply might do or react to. We are simply looking backward and saying, on this month of this particular year, farmers chose to produce this much milk, regardless of what the costs were or anything else. So we -- we take milk supply as a given.

THE COURT: How does the transportation cost, the hauling costs, take into account hours lost in traffic?

THE WITNESS: It doesn't, except the economic engineering model that we use on there has these steps that are ordinary for a plant and a particular route, and if it's typical that that route runs into traffic, you know, on a daily basis, then that's something that is asked there. If it's unusual, if there was a traffic accident or something else of the sort, we don't capture that and don't have any real way of doing that.

THE COURT: We had a witness this week whose deliveries are primarily to the north, in a part of the country that incents transportation of milk toward the

south. He complained of the differentials going north compared to what they would be if they went south.

Do you have any comments about that?

THE WITNESS: Well, he apparently has business relationships that are asking him to service a customer that, again, would be going against this economic current where we, in general, are short of milk and dairy products in the South and Southeast in particular. And as I said, the model doesn't preclude that that could be done, but it wouldn't necessarily want to try to incentivize those either.

I mean, if this were the normal thing, if we expected that to be happening on a widespread and regular basis, then we would try to look -- the model would find its most efficient way to service that particular market. Apparently, the model is not doing that because those price relationships are incentivizing milk to move to the South and Southeast.

And perhaps I should say, you know, when we look at what's changed over time, or what are the factors that the model results would provide or would yield today that might have been different than it was 20-some years ago when we were doing it, or in the intermediate time period, there are some pretty large things that can move this model.

But it takes pretty large things to get very different results from it. One of them is population. So do we have more people in a given area or do we have less?

What is the per capita demand for dairy products, is it greater or is it declining, as we have seen with fluid milk? Since about 2010 we have had declining per capita consumption -- or total consumption per capita has been declining since before that. So there have been a number of things that are changing the model.

And the other thing is, where are farms choosing to locate to produce milk? The Southeast is a difficult region, partly because cows now produce very much more milk than they did on a per-cow basis, and a byproduct of being something equivalent to a high-performing athlete is that there's a lot of excess body heat that has to be dissipated. Harder to do in those hot and humid climates. So we have seen a lot of more growth in some of the either dry or regions -- or the cooler regions of the northern tier states.

So milk production changes, demand changes, and to some extent plant locations change.

THE COURT: When you consider the population, do you consider areas in which there's a large tourist influx that increases the demand in fluid milk at times?

THE WITNESS: No. But we do look at the -- well, I shouldn't -- no. The real answer is no. We don't look at the tourist influx.

If -- if that tourist influx does cause a change in the quality of milk that is required, in other words, the butterfat levels, you know, change because we have people from different parts of the country that are down

there, then that would be captured because we do look at the AMS sales data in the regions to better understand that.

But, no, the per capita -- the number that we use for fluid and other dairy products are per capita on a national basis, and we multiply that by the population that has residency there.

THE COURT: If you're transporting to a large population, does it make a difference in the model whether what's being transported is fluid, raw milk, or packaged milk product?

THE WITNESS: It does make a difference. The raw milk bulk transport, or even bulk transport of skim milk or cream from a plant, has a different cost per mile than a refrigerated boxcar does, or that a non-refrigerated dry car does for other dairy products like either nonfat dry milk or something. So all those different product possibilities do have different cost structures associated with them.

The model also has non-linear components in the transportation. And one of the things that the model has actually projected for about 20, 25 years that we have been doing this was that we might expect to see more packaged long-distance movements of packaged fluid milk, because the probability of a backhaul in a reefer or a boxcar is much greater than it is for a backhaul in a tanker, which essentially can't happen anymore. And that does reduce the cost of transportation on that particular

route or unit.

We do see more of that happening. For a while it was a package limitation that packages of fluid milk just didn't survive the jostle and jiggle of a long truck ride, but we have managed to overcome that now.

THE COURT: Did you hear the testimony about the complaints because the drivers' hauling hours are reported by electronic equipment which is unreliable and fails?

THE WITNESS: No, I didn't hear that, and not sure what I would do with it even if I did.

THE COURT: Who else has questions for Dr. Stephenson?

I would ask for Agricultural Marketing Service questions.

MS. TAYLOR: Your Honor, might I ask for a five-minute stretch break? And in that time I'm going to have my colleague hand the witness exhibit, in case anybody else wants to look, 302, which was the testimony from Dr. Nicholson a bit ago.

THE COURT: Very good.

So, please, we'll take a five-minute stretch break. Please be back and ready to go at 4:15. And in the meantime, we will obtain that exhibit.

We go off record at 4:10.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We are back on record at 4:16. Just turned 4:16.

Mr. English, while we were on break you mentioned

that there's one function that you would like to do with the exhibit, and I agreed with you.

Would you identify what that is?

MR. ENGLISH: Yes, Your Honor, I also discussed this with Ms. Taylor who, because she mentioned an exhibit, reminded me.

There is an exhibit that was marked earlier in the hearing, Exhibit 291, that several witnesses have referred to. I think it -- I think two attempts were made to admit it, and it was objected to on authenticity grounds.

THE COURT: Say it again.

MR. ENGLISH: Authenticity grounds is my recollection for the objection. And whether or not I agreed with the objection, we just put it on hold, because as it turns out, one of the two authors of 291 is on the witness stand. And I would like to just clear up that issue and see if we can get 291 admitted.

THE COURT: And do you expect to ask --

MR. ENGLISH: I do not intend to ask questions. Others may, having recalled it now, intend to ask the witness questions. That's up to them.

But, no, I am merely trying to clear up for the record a marked, not admitted document. I have confirmed with USDA it has never been admitted. And so all I would like to do is have USDA provide the official copy of 291 to Dr. Stephenson. If you need to see a copy, Your Honor, I certainly have no problem with that.

It is merely, I hope, ministerial and quick.

Quite frankly, I intended to do it, and I forgot. I was not the person who submitted it, I think it was Edge.

It was under MIG-291, which is -- I guess that was the same number as the exhibit. I believe it's actually Exhibit 291 as well.

MR. HILL: It is.

MR. ENGLISH: All right.

THE COURT: I don't promise you we'll have time for this, because I'm doing the other first, but I'll do my best.

We're going to start with 302.

MR. ENGLISH: That's fine, Your Honor. That's fine. All I want to do is have them authenticated and admitted.

THE COURT: All right.

Now, I have in front of me Exhibit 302, also marked as NMPF-36, and you may proceed, Agricultural Marketing Service.

MS. TAYLOR: Thank you, Your Honor.

RECROSS-EXAMINATION

BY MS. TAYLOR:

Q. I think the -- well, first, Dr. Stephenson, I would like to thank you for making the trip down here to answer our questions. Glad to know somebody's listening out there in Zoom.

302, which we just handed you, is the testimony submitted by Dr. Nicholson weeks ago on the model you are discussing today.

You indicated to Ms. Hancock that you did help him with this testimony; is that correct?

A. I didn't help him with this testimony. I had written the original report that was submitted to National Milk, and he drew heavily from that for many parts of this.

Q. Okay. And I know you have answered some of the questions we had on this, and I -- I'm probably going to go through this with some additional questions since you're here, so this will help you get to the same page I'm on.

A. Okay.

Q. I think I'm first going to start, though, with what you submitted today, which was Exhibit 438. We'll go through this one first.

A. Okay.

Q. Okay. I promise I'm not going to take too long.

You mentioned that the model accounts for components now, which is different than what it did in 2000.

Is that done for the fat-skim order as well? How did you --

A. We make the estimates for the fat-skim orders. We are primarily concerned with the butterfat values that differ by region, and we do -- have done -- regression analyses to look at the relationship between butterfat and other solids and nonfat, or solids nonfat in milk production. So when we have the butterfat values, we

estimate the non-butterfat components in milk.

Q. Okay. And you mention that your dairy product plant spreadsheet, you estimated size capacity and products produced there, and you drew that from another number of sources, and it covers about 90% of the NASS milk volume.

So that other 10%, you said you just let the model allocate that by the constraint on the plant capacity at plus or minus 10%.

Is that basically how it was handled?

A. Yeah. The plus or minus 10% gives bounds on what those plants must do and may only do up to. What is left is available to be processed by those remaining plants that we don't have capacities for, and they are uncapacitated.

So in other words, you know, those -- those plants have to account for that additional 10%. And this is largely across the country, so it's not like we see all of that 10% of volume going into one plant that doesn't really have that kind of capacity.

Q. So you have -- you have capacity limits on some plants, but not all plants?

A. That's correct. Just because we don't have the knowledge of, you know, the capacity at those plants.

Q. I just want to make sure I understand this.

So there -- the plants that are in your spreadsheet that you don't have capacity numbers for, and would you say -- and that's beca- -- is that the 10%?

A. That's the volume accounts for about 10%.

I mean, we tried to, first of all, identify the plant capacities going through our lists and using sources that we have multiple sources.

And then there were still quite a few plants that we didn't have information for, but out of curiosity we wanted to see what was accounted for by the volume of the plants, which we thought we knew something about. But it turned about to be about 90% of the milk volume in the country that was accounted for with those plants. And even by region, when you look at dairy products reports and they break out some regional totals of products, the sum was very close, so --

Q. Okay. In transportation questions, you do account for the cost of supertankers.

And when you say "cost," that's the purchase cost; is that right?

A. I'm sorry, Erin, I didn't quite hear what you said.

Q. Sure. So for the transportation --

A. Yes.

Q. -- portion, you say you account for the cost of supertankers.

Is the cost the purchase price of the supertankers or are you also including maintenance, et cetera? We have heard some testimony that it's more expensive.

A. Yeah. We -- we've tried to have a sample of a variety of different things in the plants, and that

includes the different types of tractors that might be used. Gee, I don't remember what it was, maybe a decade ago we started to see different kinds of high-mileage tires that were being used on trailers and tractors, so we began to incorporate that and acknowledge those things. And the cost of tankers is, in fact, one of the inputs.

Again, what we try to do is to build this up with examples of what we think firms are, so a relatively small hauling firm, relatively larger firm, what kind of trucks do they have, what kind of routes do they have, what's their labor source. And that includes things like the tankers. So, yes, those large tankers are there.

Q. Okay. And another question on hauling. Can hauling markets differ regionally in terms of market structure? We have heard some testimony from producers that have few options for hauling, maybe a hauler exited, so they maybe have one option at this point in where they live.

How might this -- but that might not be the case for other producers in other markets who have multiple options.

So is that reflected at all in your model?

A. Yes. I mean, we account at the county level for the milk that's produced there. We do have a good idea about, you know, how many farms that might be, but that's not a part of the model structure in there. We just account for the total volume of milk. And that total value of milk has to get to a plant somewhere, and it has

to be processed into different dairy products.

So the relatively small amount of milk in a single county might go to a single plant that produces, you know, single products. Is that going to replicate what actually happens? Maybe not, but it is a possibility that it could happen in the way that the model would project it does. And if there's really only one option for a farm that you have indicated somebody may have testified for, that's probably what the model's going to do. It wouldn't try to pick a far distant plant.

Q. But would the additional increased hauling costs because of that reality be reflected?

A. That's reflected in there, sure.

Q. Okay.

A. The distance from that farm, or that center, or that county at least, to the nearest plant, if it's, you know, 20 miles, it's going to be charged for the hauling cost for 20 miles. If it's 200 miles, it will be charged for 200 miles.

Q. Okay. Let's see. In the next page you talk about -- and I'm on page 3 of Exhibit 438. You did address some of the questions we had on road weight limits.

A. Is this page 3 of my testimony or --

Q. Yes.

A. -- Dr. Nicholson's?

Q. Yes. Your testimony, which is marked as Exhibit --

A. Okay. Yep.
Q. -- 438.
A. Yes.
Q. And I just want to make sure I understand, and I'll use your Michigan truck example that goes into Ohio or Pennsylvania that has a lower vehicle weight limit.
Does your model assume the lower weight for the entire length of that route or --
A. It does.
Q. Okay.
A. It may be possible for plants to unload a portion, you know, of a supertanker on to something else, but I'm not aware. I mean, maybe Carl could correct me if he's here, that that actually happens. We don't.
We would just say that if your route that you intend to take is going to pass through one of these more constricted weight limit states, then the starting point of that route can only be 80,000 pounds or 129,000 pounds.
Q. Okay. So in your transportation model that models a bunch of different routes, how many routes is it looking at?
A. We look at, oh, about 18 different routes, I believe it is. It's either 15 or 18. I don't remember off the top of my head, Erin. But those 15 routes or 18 routes are meant to be representative of the different kinds of things, you know, that we do see. So they could be picking up a large number of relatively small farms. They could be picking up, you know, a single tanker at a

very large operation, maybe multiple tankers at that operation, but we try to cover the span of what's observed.

Q. Okay.

A. And I should also say that once we have got those costs to move 100 pounds of milk 100 miles down the road, those estimates from those different routes and different firms, we then do regression analysis to fit the curves to see how they have changed.

Q. Okay. We have had some discussion about -- and on page -- page 4 of your testimony in the middle bullet, that's where you talk about kind of how you -- how it works, is there's a differential at each plant location, and then you use some regression to kind of fill in the map.

And so there's 3,000-some counties in the United States, so the model just looks to find an estimate at each of the fluid milk plants; is that correct?

A. When we report this -- this is only Class I values. We can do other classes. You know, we can do farm milk values. There are a variety of things that could be done. But we have only reported on Class I values in the past.

Q. Okay. So there's been some questions about Proposal 19 that say there's 3,000 counties, and 2,000 of them under Proposal 19 are different than what was -- the model says or -- for example, my numbers could be off, but let's take that for an example.

What I'm hearing and taking away from your testimony is to be less concerned with the number 2,000 because there's some art to the computer of filling in the areas and the counties in between the plants.

Would that be accurate?

A. That is correct. But I also hear that, you know we -- we have made changes because we really need to get milk from this milk supply region to this plant, and we identified and we use this plant in the model. You may drive past a whole lot of counties that don't have any plant that it could drop it at, but that plant will have a value that, you know, is where we are calculating from for those other counties that don't have plants.

Q. Okay.

A. And that is a good point that you bring up, though. That Kriging algorithm that we use is not used to soften, change, morph, any of the actual values from the model. It only uses actual model values to be able to fill in places where we do not have plants.

Q. Right. And the only places you do have plants that's producing more out of the model is the fluid plant?

A. That's all that we have reported on.

Q. Yeah. On your model, when you talk about the transportation cost piece of it doesn't include restrictions such as bridges and tunnels, you talk, too, it doesn't look at traffic congestion beyond what would be considered normal.

Does it include wait times at plants? We have

heard discussion about how a hauler could have to sit at a plant for a while before it can get a back on the road. Does it capture that?

A. In the data that goes into calculating those route costs from the economic engineering model, yes, it does have the place to say how long are you at the plant to unload and get washed and get out of there. So it does include that in those kind of observations.

Now, to the extent that that may be just a serious problem at some one plant or, you know, in a particular region, I mean, more serious there than it is elsewhere, I don't know that and I have not included that. But we do include the wait time at a plant for unloading.

And, again, we -- we do have some months of the year when it can be -- or days of the month, when it could be a particular problem at plants. Thanksgiving is a notorious time for a lot of plants to have truckers sitting and waiting to get in and unloaded.

Q. Okay. Are there any other limitations to what costs are included, other than the ones we just kind of discussed that you think are things should be -- are still part of the cost of transportation and getting milk to the plant?

A. We tried to capture all of the ones that we can think of, and the ones that we think are the major ones. I have heard people say things like, you know, the spine of the mountains, you know, down the western third of the country is -- is a problem getting trucks over that.

I haven't accounted for that, if it is, in fact, a really big problem. My guess is it's maybe not as big a problem as, you know, I have heard, but, you know, I have no question that on a snowy conditions day, getting up and through the mountains is a problem.

Q. On page 6, in the second bullet you say, "Larger value changes imposed over larger regions suggests a significant shortcoming in the model structure or data."

How would you define "large" as you use it?

A. Well, again, in my opinion, I think that professional judgment changes can and should be made to the model results. This model's a simplification of reality. But if there are really large changes, and I have given you some idea because I think that nickels, dimes, and quarters, you know, are probably the kind of thing we can look at and say, you know, that's possible, but if it's, you know, in that quarters to more than that range, why? What are we missing? If we are missing that and it's really something that is impacting the way milk and dairy markets can and should work, that ought to be a part of the model. That would be, in my opinion, a pretty big shortcoming.

Q. Would you say that maybe the business relationships, the contractual relationships that exist that are not accounted for in the model, would be one of the reasons that people see these costs they say that need to be increased, that you don't necessarily want to incorporate into the model, according to your testimony?

A. No, I don't have that in here. And maybe two comments about that.

Number one, it would be very difficult for me to know and understand all of that. Well, there are some that, you know, I would certainly know and could put in there.

But the other is that I'm not really sure that just because they're a business relationship that -- and I have a hard time moving milk, or selling milk, or making product on there, that that should be incorporated into a model like this. If it's not an efficient flow, then it doesn't mean you can't do it, but it ought to mean that maybe somebody else should.

And, you know, I tried to give the example of the milk swaps that we saw happening in several regions of the country. Those didn't happen immediately. It was a complaint that we heard from a lot of farmers over quite a long period of time, and pretty soon, as those began to happen, you began to have more efficient movements of milk, and everybody still kept their business relationships. So I think that there are ways to do this.

Q. Okay. Thank you.

I want to turn to 302. And I'm sure I don't have as many questions as I started with, so let me flip through.

You talked about your plant data side, the demand side, and you had National Milk look through this list, so that's probably pretty up-to-date.

What's the most recent supply data that you used for the runs?

A. 2021. Oh, supply data. Yeah, 2021, right.

Q. Okay.

A. That was where we used the state level values. And at the time we did the modeling, the NASS data that allowed us to do that, I think had only been released a month earlier or something to that effect, so it was pretty fresh at the time.

Q. Okay. If we can turn to page 7 of Exhibit 302 in Figure 4.

And if I remember Dr. Nicholson's testimony about this, this isn't -- well, let me ask you: Are these dots all of the plant locations that were in the model?

A. I would have to check to make sure if that were the case. I think that this is an up-to-date one, but it may not be. We did have a few additions on final model run and a couple plant closures, so there may be, you know, very few plants that weren't actually shown here.

Q. And is this -- would you -- are these just fluid plants on these dots, or fluid and manufacturing plants on those dots?

A. I believe these are -- these are not fluid, these are all plants.

Q. All plants.

A. Yeah. No, Wisconsin doesn't have that many fluid plants.

Q. And then if we notice dots in areas where there's

not a plant there anymore operating, how does that impact your results versus what's actually going on now?

A. We have looked at those specific questions, and we have been asked about that before. So a good example was a particular plant closing in Northern New York quite a few years ago. And people were concerned about what this would do to the value of milk there, farms would have to have an increased hauling cost to get to the next possible plant.

And so we ran a baseline model which had that plant in there, its capacity, and we then shut that plant off and said, you are not there anymore, that milk has to go elsewhere, and then we compared what that actually did to milk prices. And in this particular case, the question was, you know, what does that do to farm milk prices? So that's what we looked at was farm milk prices.

You can absolutely see what the color scheme we used was red to green on there. The impact right at that plant location to the value of milk for those farms, but recognized that that's also a positive contribution to some other areas that have now got milk, you know, that they didn't have access to before.

But it's like throwing a rock in a pond. You see these ripples that go out, you know, in the value of milk. They are intense toward the center, and they get less and less and less as they go out, and pretty soon it's a relatively insignificant change.

Q. And might that be a reason one might look to make

some changes from the model? As you indicated, USDA did that in reform, took the model results and then --

A. Well, we did make a few changes for the final model runs that you have the results for, in that a couple of plants were added, a few plants, I think four plants were added, that were pretty sure to be online. Either they had already broken ground and they were going to be taking milk within a year or something to that effect, and we did close a couple of plants that we knew were going to be closed in the not-to-distant future.

So in -- you know, I do say that we tried to make these runs for a very specific month and year, and we take those things as given. We can make some changes because by the time this is implemented, if indeed there are changes recommended and voted on, you will probably want to be dealing with the closest thing to the markets you have then, not what existed a few years ago.

Q. Uh-huh. I want to turn to page 15 at the top. You say -- there's a sentence, the top paragraph, the second sentence from the end: "Moreover, the model results are not sensitive to changes of plus or minus 5% in demand values or estimated transportation costs."

I just want to make sure the record is clear. So if -- if there's any change that happens, but it doesn't hit that threshold, then the model doesn't recognize it and account for that in any way?

A. No, it -- it does. Obviously, it will take that in. But it may be that if you have changes in estimated

transportation costs -- let me -- maybe I should read this to see what the 5% was referring to.

Yeah. I think that what Chuck is trying to say and account for there is that the model is sensitive to things that have changed, but it's not hypersensitive. It's kind of like a supertanker in the ocean. It takes quite a bit of water, you know, to turn this thing around. So relatively small changes are not going to give you a big change in outcome, because, frankly, there aren't that many things that -- different that the model can do, you know, for change in a given area or something. But big changes over time make real differences.

And you can see some of that, I think, in the maps that were shown later on when we compared our results to the kind of differentials that we currently had in place. There were some regions, even those that have already had some attention paid to them since Federal Order Reform back in 2000, where it was still suggesting, you know, there were some increased prices that should be made.

Q. If you can turn to page 17, and there's four regions on that, in that Figure 7. And we asked Mark if he could define the regions, and he said -- we asked Dr. Nicholson if he could define those regions, and he said, "Ask Mark."

So you are here now. I was wondering if you could define those four regions, just so we know exactly where you are talking about.

A. I wish you would have asked me before I came down.

That file is on a different laptop.

Q. Okay.

A. But I can tell you approximately what those regions are. The Northeast includes certainly over to Ohio, and I believe down through Virginia, just as an example.

The Southeast is the region south of that, and at least on over through Louisiana.

The West is Texas on up through Colorado, and I believe on up -- I'd have to -- I could give you the precise states, I'll be happy to do that. But there are regions of the country where I think the divisions make some sense, you know, that they have characteristics that are somewhat homogeneous.

Q. And do you know --

THE COURT: Let me just ask, what is the best way for us to get that from him? Which would be very useful, I think, Mr. English.

MR. ENGLISH: He's coming back in January.

THE COURT: Okay.

MS. TAYLOR: He's going to be our favorite witness by the end of this hearing, which is not a title he wanted. But if he could possibly bring it down when he -- back when he comes and enter it, and I promise not to ask very many questions on that.

THE WITNESS: So noted.

BY MS. TAYLOR:

Q. If you will do me the kindness, I would appreciate

it.

A. I would happily do that.

Q. Okay. And then the Figure 7 change, it's titled, "County-Level Change in Milk Production."

What do the colors -- I want to make sure this is straight, because there's not a color legend, so could you tell us what the color shading indicates?

A. Sure. And the indication here was -- that I wanted you to get away with is that shades of green indicate degrees of increase in milk production; shades of pink to red indicate contraction; and those gray-colored counties are maybe a little up, a little down, but basically no change.

Q. Okay. Thank you.

If we can move to page 21. I think you have answered some of them, so let me look here.

On the pie charts that are on that page, and the percentages, I assume percentages of the total -- you know, you write something, like, six weeks ago, down on a note, and you might not know what it means anymore.

Let me ask you this. The percentages from 2011 and 2021 shown, does that come from that ATRI study --

A. I believe that it did, yes.

Q. -- and footnoted in the previous page?

A. Yes.

Q. I believe that was my question.

And do you know how they got there? How that study worked?

A. Do I know how that study works?
Q. Yeah. I mean, where did they get their percentages from?
A. They survey their members, and I don't remember what the actual number is, but it's a very large number of trucks and firms that they get their statistical survey data from. It's something like 100,000 vehicles or, you know -- I believe it was something like 100,000, so it's a large thing.
The ATRI stands for American Transportation Research Institute, I think, something like that. They have been around for quite a while.
Q. Okay. And these charts are supposed to show us that maybe the overall price increased, but within that the allocation of costs have changed a little bit. For example, fuel was 35% in 2011, and it's -- it was found to be 25% in 2021.
A. That's right. And wages had gone up rather considerably.
Q. And I have a question on Figure 13. If you could explain that figure. And is that in any way related to what was in the Figure 12 pie charts?
A. Yeah, it's a way -- I mean, the pie chart is, of course, showing you the relative proportions of the cost categories, but it doesn't impart an idea about the overall change in total costs. So, for example, it indicates that fuel costs had declined from 35% to 25%, but perhaps total fuel costs actually remain the same, or

might have even gone up a little bit. And you can see from that Figure 13 below there that when you are looking some of the total costs of transportation that, from 2020, there was a substantial increase in costs.

Q. And does this -- where -- do these numbers come from the ATRI report as well?

A. From which report?

Q. So Figure 13, I'm -- I was wondering where is the source of these numbers in this chart?

A. Where the data came from? I believe that the data from this also came from the ATRI report. I did pull numbers from a few different sources. Those, you know, wages, fuel, and that type of thing, can be pulled from BLS data specific to transportation companies. You can also pull data from a couple of other trucking reports that are done. And so we do look at that when we're trying to update the costs in that economic engineering model.

Q. Okay. And the last question, and I only have like two more, and they are very simple.

But the last question on the transportation side of things: Does it take into account lack of competition in the hauling industry in some regions of the country?

A. No. All this is doing is trying to synthesize the costs of -- of what it costs to assemble and transport milk.

And I should just tell you maybe that the genesis of this economic engineering model had actually come from

work that predated me out of Cornell University, and we had relatively small haulers that were so competitive with one another that, you know, they would sometimes bid for milk pickups that didn't cover their full costs of operation. And they may have covered the variable costs, or hope they did that, but maybe not the full cost.

And over time the co-ops realized that even though they were contracting with these haulers, they were going out of business because they weren't covering their costs. And so they had asked whether we would help them better understand what those costs were.

And we worked with the haulers very closely. We worked with co-ops and others, and that way when we had an opportunity to -- when the co-ops had the opportunity to sit down and negotiate for hauling costs, they wanted as much as anything to assure their haulers that their total costs were being covered.

So that's the way we began to do that. Even that economic engineering model has been substantially re-done and rewritten from those early days, but that was the genesis of it.

Q. Okay. If we could turn to page 24. This was a quick question on the map, the lines.

Is it $0.10 increments? What is the increments between the lines?

A. Yeah. Those -- those are the isocline lines that I talked about in my comments today, and they are shown here just for clarity at every $0.10. If you put them in

every $0.05, it would be just difficult to read in some areas.

Q. Okay.

A. And I believe that you had an earlier question about where are those low dual value regions in the country.

Q. Yes.

A. And you can see from a map like this pretty clearly that those are going to be in the areas where we have -- oh, I see 1.8, for example, over there in Idaho. There's -- looks like sunglasses on edge there.

Q. That 1.8 includes the $1.60 differential as discussed earlier with somebody?

A. Yeah, it would in there somewhere.

Q. Okay.

A. And likewise, I believe it -- right up there in that Red River Valley area, that there was a low spot.

Q. Okay. This is perfect timing. It's 4:57 and AMS has no more questions.

MS. TAYLOR: Thank you very much.

THE COURT: Let me ask, does anyone else have questions about Exhibit 302 that you want to ask Dr. Stephenson?

There is no one.

Mr. English, you may approach. And we have enough time --

MR. ENGLISH: Your Honor, I would like Dr. Stephenson to identify what has been previously marked

as Exhibit 291.

THE WITNESS: Yes. This is a document that I co-authored with Dr. Novakovic, and this was done at the time of COVID when we were all locked at home worried about such things as depooling and negative PPDs, and we -- we authored this document. It's a document that is still available on that DairyMarkets.org website.

MR. ENGLISH: It is authentic?

THE WITNESS: Pardon?

MR. ENGLISH: It is authentic?

THE WITNESS: Yes, it is authentic, at least from what I looked at.

MR. ENGLISH: Your Honor, at this time I would move admission of both Exhibits 291 and 302.

THE COURT: Is there any objection?

There is none. I admit into evidence Exhibit 291.

(Thereafter, Exhibit Number 291 was received into evidence.)

MR. ENGLISH: Then Exhibit 302.

MS. TAYLOR: That's already in. Your exhibit is 438.

MR. ENGLISH: Sorry, 438, I apologize.

THE COURT: Is there any objection to the admission into evidence of Exhibit 438?

There is none. Exhibit 438, also known as Stephenson Exhibit 2, is admitted into evidence.

(Thereafter, Exhibit Number 438 was received into evidence.)

THE COURT: Dr. Stephenson, is there anything you would like to add before we invite you to step down?

THE WITNESS: No. Thank you.

THE COURT: Thank you. It was a real pleasure to have you here.

THE WITNESS: Thank you.

THE COURT: I look forward to January.

Now, let's have AMS collect its record copies. Mr. English is helping, but I have one. I have actually two, don't I? I have 302, and I have 291. Thank you so much.

And now do we want to talk a little bit about tomorrow before we recess?

MR. ROSENBAUM: Yes, Your Honor. Steve Rosenbaum for the International Dairy Foods Association.

Our first witness tomorrow is going to be Mr. Tim Galloway. Mr. Galloway will have a short statement that's going to be solely devoted to Proposal 21, the proposal to increase the Class II differential, at least that's what his written testimony covers.

THE COURT: All right.

MR. ROSENBAUM: And then we have two other witnesses, Mike Brown and Sally Keefe. And -- well, I say "we." There are -- Ms. Keefe is here for MIG, not for IDFA. And I'm not exactly certain that right now which is going to be the order of the two for those two, but those are the three witnesses.

THE COURT: Mr. English?

MR. ENGLISH: And given that, we will, when it is available, as soon as possible, post Ms. Keefe's testimony and e-mail it to the parties. I cannot promise when that will be.

MS. TAYLOR: And Mr. Galloway?

MR. ENGLISH: It has not been submitted yet, but it will be submitted shortly.

THE COURT: You are going to keep everybody up all night, aren't you?

MR. ENGLISH: I hope not. It's not my fault.

THE COURT: All right. Is there anything further before we recess?

MS. TAYLOR: We end early tomorrow.

THE COURT: Yes, I will say that. I will say that. Did you -- let's see what Ms. Hancock's question is.

(Inaudible question by Ms. Hancock.)

THE COURT: She wants to know if there is any chance we will get through those and have someone else. And I'm seeing negative responses, that it is -- that is unlikely.

MR. ENGLISH: If we get through all of those, as I said earlier this week, Ms. Keefe would be prepared to give her testimony on MIG-20. But I can tell you that if that happens with only, I think, five hours and 40 minutes of actual time for Mr. Brown and Ms. Keefe plus Mr. Galloway, I just don't see that happening.

THE COURT: Yes, you are correct, Mr. English.

Our plan is to end by 2:40 p.m. tomorrow so that we can be out of this room by 3:00. All right.

I will see you all at 8:00 tomorrow morning. We go off record at 5:02 p.m.

(Whereupon, the proceedings concluded.)

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STATE OF CALIFORNIA)
) ss
COUNTY OF FRESNO)

I, MYRA A. PISH, Certified Shorthand Reporter, do hereby certify that the foregoing pages comprise a full, true and correct transcript of my shorthand notes, and a full, true and correct statement of the proceedings held at the time and place heretofore stated.

DATED: January 28, 2024

FRESNO, CALIFORNIA

MYRA A. PISH, RPR CSR
Certificate No. 11613

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