ASRAC COMMERCIAL UNITARY AIR CONDITIONERS WORKING GROUP MEETING

JUNE 9, 2015

A P P E A R A N C E S

Karim Amrane, Ph.D.

Mary Anderson

James Battaglia

Chris Carr - via webinar

John Cymbalsky

Adam Darlington - via webinar

Andrew deLaski

Jim del Toro - via webinar

Paul Doppel - via webinar

David Garvin - via webinar

Travis Hardin - via webinar

Isael Hermosillo

Eileen B. Hoffman

Jill Hootman

Long Huang - via webinar

Marshall Hunt

John J. Hurst

Christopher Lau

Steven Maddox - via webinar

Michael J. McCabe

Sam McClive - via webinar

Charles McCrudden
Karen Meyers
Nicholas Mislak
Raquel Nieto
Javier Ramirez
David D. Ransom
Michael Rivest
Greg Rosenquist
Harvey Sachs, Ph.D.
Amy Shepherd
Michael Shows - via webinar
Wade Smith - via webinar
Louis Starr
Eric Stas
Rusty Tharp
Meg Waltner - via webinar
Detlef Westphalen
Robert Whitwell - via webinar
Linda Wilson - via webinar
Dave Winningham
Mike Wolf - via webinar
Xing Xu - via webinar
Sami Zendah

AUDIO TRANSCRIBED BY KYLIE S. SHEPHERD

P R O C E E D I N G S

MR. RAMIREZ: All right. Welcome, everyone. Let's go ahead and get started. And the let's get started with introductions, and then we'll go through and see who's online.

Javier Ramirez with Federal Mediation.

MR. HERMOSILLO: Isael Hermosillo with Federal Mediation.

MR. MISLAK: Nick Mislak, AHRI.

MR. THARP: Rusty Tharp, Goodman.

MR. SACHS: Harvey Sachs, ACEEE.

MS. MEYERS: Karen Meyers, Rheem.

MR. WINNINGHAM: Dave Winningham, Allied Air.

MR. STARR: Louis Starr, Northwest Energy Efficiency Alliance.

MR. HUNT: Marshall Hunt, PG&E and the California IOUs.

MR. deLASKI: Andrew deLaski, Appliance Standards Awareness Project.

MR. McCRUDDEN: Charlie McCrudden, Air Conditioning Contractors of America.

MR. ZENDAH: Sami Zendah with Emerson.

MR. STAS: Eric Stas, DOE General Counsel's Office.

MR. CYMBALSKY: John Cymbalsky, DOE Appliance

Standards.

MR. ROSENQUIST: Greg Rosenquist, LBNL.

MR. RIVEST: Mike Rivest, Navigant.

MS. NETO: Raquel Neto, Navigant.

MR. LAU: Christopher Lau, Navigant.

MR. WESTPHALEN: Detlef Westphalen, Navigant.

MR. AMRANE: Karim Amrane, AHRI.

MR. McCABE: Michael McCabe, consultant to Trane.

MR. HURST: John Hurst with Lennox.

MS. SHEPHERD: Amy Shepherd, AHRI.

MR. RANSOM: Dave Ransom, McDermott, Will & Emery, we represent Goodman.

MR. HURST: John Hurst with Lennox.

MR. BATTAGLIA: James Battaglia from Navigant.

FEMALE SPEAKER: Okay. On the webinar we have David Garvin, Jim del Toro, Linda Wilson, Long Huang, Meg Waltner, Michael Shows, Robert Whitwell, Sam McClive, and Steven Maddox.

MR. CYMBALSKY: Okay. So this is John from DOE, we are down to the home stretch here, so we have today and tomorrow hopefully to figure things out, and then a webinar on the 15th, if necessary.

So I'm hoping these next two days actually provide the forum for us to get down to business and

hopefully get a terms sheet prepared and ready to send to ASRAC, the ASRAC meeting on June 17th we were hoping would be the place to raise a term sheet from this group.

So we're still on track. I think we made really good progress last time we met. We've had proposals from the manufacturers and the advocate community. At the conclusion of last time, I remember we were, you know, still a little ways apart on those positions. And I think we all know DOE's position in the NOPR was TSL-3.

We're going to show some numbers today, again, going through the TSLs there's been a couple revisions based on what we talked about last time, most notably the efficiency trend that wasn't captured in the numbers that you'll see captured this time. So you'll see new numbers.

I think we also have the analysis Navigant was working on, and I know Carrier was interested in with the IEER differentials. And we also have the dual duct definition outstanding, as well.

So hopefully we can go through -- we're going to go through the slide deck first just to show what the new numbers are. And then at that point, we can then talk about proposals and that, or we can flip to the other content if we want. It's really up to the group on how we move forward.

But is there anything else anyone would like to say before we jump into the revisions to the NIA?

MR. RAMIREZ: I'll go ahead and jump in, then. All right. So before we give the floor to Greg, now, if I remember correctly, there were really only a few things that were left out of the initial proposal that the industry had presented.

Both sides were going to be looking at the EER language and see what we could do with that. The effective dates under the second step, the levels, and really that was about it. Everything else seemed to -- in the form of a package, right, that both sides were saying that they could live with pretty much everything else that was in there.

And what I had asked you all was, think of ways to be creative. And it seems like there would be no reason that we can't get this thing done in the next couple days, realistically probably even by the end of today, looking at what we have. However, where the complexity comes in is that creativity piece where we're going to have to look at this stuff. Because everyone knows what the DOE levels are, they came in at 3.

We're at a range between 2 and 4. But we do have some moving pieces there as far as the dates, small and large units. And that's where the creativity comes

in and seeing how can we adjust these numbers to make everyone -- and I'm cautious even with the word "satisfied," but that you could live with, right. That you could live with the final numbers that you all agree upon.

But let's go ahead and get started with Greg, and then let's roll into these remaining issues and see how close we can to get this thing wrapped up, maybe even today.

MR. ROSENQUIST: Good morning, everyone. As John mentioned, we made some updates to the National Impact Analysis. The two primary things that lead to significant changes in the numbers were our way of accounting for stock. As you remember, were -- we have quite a large drop -- we have a drop in shipments due to the standards, and that leads to extended repairs of existing units, rather than being replaced.

Those units get, on average, half the lifetime of a normal unit. And due to some sort of peculiarities in the way that we're accounting for those extended repairs, we are underreporting those extended repair stock numbers. It wasn't a lot, but as a result of that, we were actually creating energy savings by effectively displacing shipments.

So that has since been corrected, and that

revision of accounting for that extended repair stock properly leads to approximately a 10 percent drop in the numbers that you saw last week.

The other major change that leads to a significant change in the numbers is the incorporation of this building efficiency trend. You may have remembered from a few weeks ago in our discussion of economizers, how we said we were going to incorporate an efficiency trend for the building stock, which implicitly accounts for the use of things like better windows and economizers.

And in the numbers we provided last week, we had neglected to include that efficiency trend. And that comes from the annual energy outlook and the incorporation of that trend, again, because it leads to a mor efficient building stock, reduces the energy use of equipment in that stock, and in result, drops the energy savings numbers by around 10 percent.

So together, as you'll see, the drop totals about 20 percent. As a reminder, these were the trial standard levels that were reported on last week, it's just a combination of ELs from each one of the product classes.

For example, TSL-2 is efficiency level 2 from each product class. The only product class not like that

is efficiency level 3.5 where the very large equipment classes are being assigned efficiency level 3 because there's no efficiency level 3.5 for that equipment class.

And here are the numbers. Again, I think you probably want to focus on the bottom lines where -- the very, very bottom line was what was reported last week. The line above that is -- are the new sets of numbers, the new national energy savings numbers.

The next slide just reports the net present value at 3 percent. And again, for comparison purposes, you can see the new numbers relative to the old numbers, and those old numbers that were reported last week are at the very bottom row.

The next slide reports the NPVs at the 7 percent real discount rate. And again, same formatting, last -- very last row in this table is what was previously reported last week, and the second to last row are the revised results.

This slide provides the impacts -- the National Impact Analysis results for the two proposals that were put on the table last week. I've labeled them the industry proposal and the advocate's proposal.

And as a reminder, it was adopting efficiency level 1 with a compliance date of 2018 and efficiency level 2.5 in 2024, that was under the industry proposal.

The advocate's proposal was that same adopting of efficiency level 1 in 2018, and efficiency level 4, then, in 2022. You can see the numbers --

MR. deLASKI: Can I interrupt, Greg, can industry confirm that that's the right characterization of your last proposal?

MR. THARP: Rusty Tharp with Goodman. It was 2.5 for this small, large, and 2.0 for the very large.

MR. ROSENQUIST: Okay. My apologies. I can easily generate that number for you when I return to the table.

MR. THARP: But this gets ballpark. So as far as I'm concerned, this is ballpark, close enough.

MR. ZENDAH: Sami Zendah with Emerson. How did you deal with the dates? Some of them have different dates, January 1, 2018 versus '19.

MR. ROSENQUIST: We modified our spreadsheets to account for that second tier that comes in at that later date.

So -- and again, so I have a spreadsheet tool that -- where I can alter the first compliance date to either 2018 or 2019, and alter whatever more stringent level after that, using compliance years between 2011 and 2024 -- I mean 2021 and 2024.

MR. CYMBALSKY: Just, it's not on this slide --

this is John from DOE. But I know I wrote this down as that the DOE TSL-3 is 16.3, just to give some perspective on the quad numbers between the two proposals and TSL-3, which was DOE's proposal.

From what I'm understanding, if Greg changes the 12.6, sounds like it's going to go down a tick based on --

MR. ROSENQUIST: Yeah, if I change the very large equipment classes to 2.00, it will decrease the energy savings number in the NPB savings that you see listed there. And if you're interested, I can easily generate that very quickly.

MR. HUNT: Marshall Hunt PG&E. And to refresh our memory, it's 2019 for the NOPR?

MR. ROSENQUIST: Right. Yeah, I should reiterate that the previous slides here, for these -- let's call them the standard -- trial standard levels, all have a compliance date of 2019.

So that 16.3 that John was referring to for TSL-3, you can see there. Again, that has a compliance date of 2019.

MR. SACHS: John, this is Harvey. And your 16.3 is with the original NOPR value or what does that refer to?

MR. CYMBALSKY: So the 16.3, if, you know, let's

say DOE was doing its course of business and it took all this information through the public comment process, reprocessed the NOPR based on all the information where we reside today, that would be TSL-3 that DOE had initially proposed.

MR. SACHS: Thank you.

MR. deLASKI: Right. So --

MR. RAMIREZ: This is Javier. Just really quick, can we just have folks state their names for the record when they speak? Go ahead, Andrew. And then Karim.

MR. AMRANE: This is Karim with AHRI. Greg, question, when we -- for the DOE scenario, we are talking about January 2019 or are we talking when DOE publishes the rule three years after that? So how do you do the analysis?

MR. ROSENQUIST: It effectively assumes a January 1st, 2019 date. But as you point out, Karim, it will be four years after the publication of the final rule.

MR. deLASKI: Three.

MR. ROSENQUIST: It's three?

MR. deLASKI: Three.

MR. ROSENQUIST: Okay. Three years.

MR. deLASKI: This is Andrew. Just a couple

comments on that. One is just to clarify, so the expectation was a final rule by the end of the year, and then an effective date per the statute three years after that. And every year we're assuming a January effective date throughout the analysis, right, whatever the scenario is?

MR. CYMBALSKY: Right, you get the full years of savings, right. That's correct.

MR. deLASKI: And then the 16.3 number, John, that you're plucking -- that you're citing, you're just looking at slide 8 here.

MR. CYMBALSKY: That's right. That's all I'm just --

MR. deLASKI: You're saying we updated the analysis the way we all that's been updated through the course of these negotiations, and the result -- the same policy that was proposed in the NOPR per the updated analysis would yield 16.3 quads of cumulative savings that you would have saved over the analysis.

MR. CYMBALSKY: That's right. I was just trying to equate the TSL choice in the NOPR to where we sit today. That's right.

MR. THARP: Rusty Tharp with Goodman. Just on the three years, there was also some opinions submitted with the NOPR comments that four years is the correct

time. There was some discussion, I think, just for the record.

MR. ROSENQUIST: This next slide just provides the CO2 reductions that result from the various trial standard levels including the industry and the advocate's proposals. And again, I just want to clarify, the industry -- what I'm calling the industry proposal includes a 2.5 for the very large equipment class.

So I mischaracterized that, it's really EL-2, and so the numbers you see here are going to be a little bit higher than what the actual impacts would be if you set the very large class to EL-2.

That's all I had with the updates to the National Impact Analysis.

MR. RAMIREZ: Any further questions or comments for Greg?

So where do you all want to go from here as far as digging into the outstanding issues?

MR. HUNT: Excuse me, Marshall Hunt from PG&E. Greg, I do have one question I'd like you to comment on. On the slide 8, although it's taken out in this copy, I'm always noticing that the 3.5 -- for the small equipment, 3 is 5.8, 3.5 is 5.4, and 4 is 6. And I never really believed that. Do you have any explanation how if I didn't believe it, how I might go around figuring out

why?

MR. ROSENQUIST: Can you repeat your question? I was talking with Mike.

MR. HUNT: So Marshall Hunt, PG&E. If you look at the small equipment, this is on --

MR. CYMBALSKY: Go back to slide 8, Greg.

He's basically saying why is TSL-3.5 lower energy savings then -- go back. Right there. 5.8 and then 5.4 and 6.0. And this was -- this was the fan question.

MR. ROSENQUIST: Yeah, I mean, it's the characterization of that equipment design and, you know, we've -- I think we've discussed this throughout the meetings that we've had that, you know, there's a lot of fan operation now at these elevated external static pressures.

So something that looks attractive from an IEER perspective, aren't in those external static rest procedure when you put them into actual duct work with higher static pressures, you would get a higher energy consumption for the fan, and thus, you're starting to depart, again, from what you would expect from the IEER.

So again, it's an issue that I believe Andrew, in particular, has raised with the test procedure. But again, you know, as we've said, the test procedure is off

limits. But that's, in general, the reason why you get this behavior.

MR. HUNT: Thanks.

MR. ZENDAH: Sami Zendah with Emerson. So basically it's the unit that was used for the analysis. I mean, it's just -- the design of the unit versus other ones. So that's what the numbers shook up to be that, so I don't --

MR. deLASKI: Yeah, my recollection -- this is Andrew. My recollection of some of the earlier interaction, and I'm not sure whether Jill's on the phone or not, but we -- there's a point of IEER difference between 3 and 3.5. It goes from 14.8 to 15.8, so it's a pretty good jump. It's a -- you know, an additional 9 percent of IEER improvement.

And I think what we heard before, I remember Jill's comment because she made it in a really blunt and clear way is that yeah, that could be the case. I mean, it could be the case, right? So a unit could do that, and under the tests the way it's structured. But what I didn't hear was that that's the way we would do it, right. And I think you know, that we -- as IEER goes up, we expect there to be designs that will deliver energy savings for the user because it's just -- granted, you could -- so the test method lets you as a way you can

circumvent it to get a higher energy consumption, but it's not what anybody wants to deliver for their customer, I don't think. That's kind of what I heard.

MR. STARR: So Greg, this is a question for you. Isn't also part of the problem -- Louis Starr with NEEA. Isn't part of the problem where you're putting in the curb in? So at I think seven-and-a-half ton, you're kicking in the curb which actually introduces more static pressure in addition -- so you have your external static pressure, but you also have to overcome the curb and you have a higher percentage of curb occurrence at that higher TSL level.

And so it actually you end up using -- is that part of what we're seeing in there, too?

MR. ROSENQUIST: Yeah, that's a good point, Louis. Although, you know, at TSL-3 I believe a fraction of the market estimated to the curb conversion is around the order of 65 to 70 percent. And then when you get to 3.5, it's only marginally larger than that.

So again, as Detlef had reported on in prior meetings, you know, EL-1 approximately 30 percent of the market is estimating at a conversion curb. And then by EL-3, it's 70 percent. So it's -- I think you can more or less draw a line between those two points, right. And then it starts -- after 3 it starts flattening out a bit.

MR. STARR: So I guess more of a question about this, maybe this would help out. If it was a different model, would that have really -- I mean, first of all, how many models are at 3.5?

I think I had this discussion with someone over at -- I don't remember if it was Navigant or whatever. It wasn't a lot of models. So in other words, you picked a representative model, but there may not have been that many representative models.

What I'm getting at is, is how much is this indicative of less about the model you picked and more about something else? And that's kind of what the concern is. You see what I'm saying?

In other words, if you went and used another model and got the same number and you went and used all five models and got essentially the same number, it's not that you're choosing the wrong model, it's that maybe there's something else wrong.

MR. ROSENQUIST: Yeah, I mean, again, we've discussed that very issue in previous meetings. And I know Detlef, if you want -- I don't know if you want to comment further on that, but --

MR. WESTPHALEN: Hello? Yeah, I'm just looking back at the units selected and the component wattage profiles. The EL-3 has a 14.77, hundredths digits IEER

with a 623 watt indoor fan for the test condition at the full speed. EL-3.5 does have a point higher IEER at 15.78, but the indoor power fan power at full speed is 970.

So it just happens to be a selection that, while it does have a better IEER, has more fan power because of the way the energy use analysis emphasizes the fan power more, we get this result.

MR. STARR: So that has nothing to do with the curb; right?

MR. WESTPHALEN: Well, I mean it impacts the numbers that you see, clearly. Regarding the curb -- I thought you said curve.

There is an increase in percentage of units that are modeled as using a curb adapter, but I don't think that's it.

MS. WALTNER: This is Meg. It looks like -- can you hear me?

MR. RAMIREZ: Yeah.

MS. WALTNER: Okay. There's an echo, but I'll just talk through it.

So it looks like the difference between EL-3 and 3.5 for the use of curb adapters is 60 to 70 percent for the seven-and-a-half ton units. And then the other difference that I noted was that the EL-3 unit was a

three-stage unit, and the EL-3.5 unit was a two-stage unit. I'm wondering how much that's driving the difference in the analysis.

MR. WESTPHALEN: This is Detlef. I don't think so. These were all modeled as staged air volume. And so there was only one stage as far -- or two stages, shall we say, as far as the air flow goes. The 3 had, you know, for the test procedure conditions had a 623 at full fan and then a 310 at part load. The 3.5 was 970 at full fan and then 528 at the part load.

MR. deLASKI: I think we have spent quite a bit of time on this topic and -- as Greg is nodding his head and has pointed out on this topic previously at our earlier meetings. And it's -- I think where we've landed on this particular issue, and what I've heard is that there's an agreement that we need to -- not for this docket -- but for future, to take a look back at IEER to have it better reflect fan energy consumption. And that that was part of our tentative agreement -- I think we had a tentative agreement on as Javier suggested at the beginning, that that was a point that we had that there should be a look at the test method to better incorporate the energy use so that this anomalous result which we can't attain should be avoided in the future. Can be avoided in the future, but we can't do it for this docket

given the ground rules that were laid down. Now, people have other ideas, I'm open to hearing them, but that's where I thought we left things.

I also, you know, would ask -- no, let me leave it at that because it looks like Rusty wants to say something.

MR. THARP: Rusty Tharp, Goodman. My company would support some modification, some discussions on test procedures, and -- I just had a senior moment. I forgot where I was going with that, so I'll come back.

MR. RAMIREZ: Yeah Rusty, I think you're a little too young for that, but we'll accept it.

MR. WINNINGHAM: This is Dave with Allied Air. You know, I think this whole discussion and around this brings to light that there's a lot of variability in these analysis and it's highly dependent upon what systems you choose and what assumptions.

Some of the assumptions that we have made here go well beyond the test procedure, and we're getting results that are unexpected. You know, we agreed to .75 and 1.25, but there is a large population of products that probably have static pressures of .3 and maybe even below that, particularly in big box and retail type application. And so we've driven this kind of into an area that, really, IEER wasn't intended to address.

But again, it kind of brings to light that this stares a lot of variability and questions around the analysis in general. And I'm not advocating that we go back; we are where we are, we're here to talk about those levels. But realize, they're probably directional at best.

MR. RAMIREZ: Dave, I'd like to use it as a segway, right. If you all have already agreed on certain assumptions with the additional information that Greg just provided, how does that impact the remaining items that we need to negotiate?

And I say "remaining" in the context of a package deal. But try to narrow the focus to those few items. Where do we go from here?

MR. WINNINGHAM: Well, I guess, you know, just to open the discussion. The manufacturers have reviewed what was discussed at the last meeting, and each of us has went back to our own organizations and discussed what the manufacturers proposed and also what the advocates have proposed. And I think each of the organizations has got a varied response of support for their own manufacturers proposals.

The current advocate's proposal is well beyond anything that the manufacturers could support. At TSL-4 and 5, you can kind of throw a blanket -- that's all max

tech's options. It's just a bandwidth of the same types of technology and how a manufacturer has chosen to employ those.

Going back to DOE's NOPR, the manufacturers had many concerns about the NOPR proposed levels. You know, the system energy analysis, and the manufacturers still maintain those concerns. There was even a growing concern over the economic analysis and some of the assumptions that went into this.

And I know there is a banding of the IMPB, but even at the probably the worst case scenario, many of the manufacturers feel that that's probably a rosy outlook.

The NOPR stated employment levels of 1,085 domestic employees. And at the last meeting, we discussed that we feel that is off by a significant factor. And I am really, personally troubled that none of this analysis has been updated to take that into consideration. These are real people with real impacts, and we don't even have a slide for that. That bothers me, personally.

The manufacturers maintain that the process for commercial products is different than residential. That any incremental level beyond 90.1 must be supported by clear and convincing evidence. You know, in this determination there's seven factors that need to be

considered, including the economic impacts on consumers and manufacturers, lessening of competition, impacts on utility. And the NOPR DOE concluded that EL-4 didn't meet the criteria for basically legal economic justification. The manufacturers commented that they believe that clear and convincing evidence hadn't been established at EL-3.

Now, having said that, we're here to negotiate and I think we've been very forthcoming with information to help update these analysis, but we still have significant concerns going forward with this. We are concerned that while we can reach agreement here, DOE is still bound to that legal economic justification, and we can't actively support something that we feel is beyond those levels.

You know, there are many issues we've discussed: The ventilation air, the static pressure, and we also talked about the employment levels. And as we're kind of, you know, reengaging here today, I just would ask that those factors be considered. The manufacturers aren't in a position to, at this point, move beyond what they have already proposed.

And Rusty, I don't know if you've got any further.

MR. THARP: Rusty Tharp with Goodman. As Dave

mentioned, one of the concerns that my company has is that the -- primary concerns is the energy consumptions that energy savings that are proposed or estimated are based on values that are not really from a test procedure.

So they're -- and what will -- the energy savings that will be found in the field cannot truly be for any one consumer, cannot truly be identified by solely the IEER metric alone. Because as we've discussed many times, I believe the -- there are many ways that a manufacturer can get to a certain IEER level.

A manufacturer can choose compression technology and make Sami happy. We can choose heat transfer technology, we can choose air movement technology as alternate ways to improve the overall IEER of the product.

So just because Manufacturer A hits IEER and gets X number of ventilation savings, Manufacturer B with the exact same IEER is not going to have that same ventilation savings. And so we don't think it's necessarily right that we're proceeding down this path of proclaiming X number of quads saved by the IEER metric.

So that's why I stated earlier, in the long run some changes to test procedure and modifications would be appropriate. But with where we're at today with the test

procedure we have, we can't necessarily get there.

So as we're marching down the path towards -- our intent, as Dave indicated, my and my company's intent is the same as Dave's in that we want to come to some sort of agreement. We think that's better than the other alternatives. But we also want to do what we believe is economically justified and technologically feasible. And we want to be able to, you know, march down the path together where we get to a point together where we, as industry, supply information that helps the consumers make the right choices for their applications.

And, you know, as we march through this analysis, you know, there's -- the exact same product that we -- Consumer A uses, he could have that product with practically no ventilation or very minimal ventilation hours. Another building could use the exact same product with the exact same IEER rating and be using lots and lots of ventilation hours.

So it's hard to see how that one metric and we can claim the same certain number of savings without having more detailed information. So that's where we're at.

MR. STARR: So this is Louis with NEEA. You know, I understand the concept, obviously, that, you know, the energy use of this equipment can be from

multiple areas.

You know, just from a practical standpoint from NEEA's standpoint, we look at it and we're concerned a little bit that the metric is real heavily weighted towards refrigeration side. And while you're correct that, you know, you could have a building, a data center could be an example where you have no ventilation; right? And so it wouldn't make sense.

But most buildings have people in them, and there's quite a bit of ventilation that occurs. And so the test procedure is more weighted towards the refrigeration side by quite a bit.

And, you know, as far as doing lots of analyses and modeling in the northwest in general those static pressures and talking with Newcomb & Boyd, I can't think of his name, type guy. And in general, from what I specified lots of equipment for a number of years, we used much higher static pressures. Now, I understand they may be redesigning duct work, but if you go back to existing buildings now, you'll be matching up to existing duct work that's much higher than the static pressure that's used in a test procedure.

Our concern is that moving forward, you know, regardless of what level we choose, that you're driving towards something that's not really getting energy

savings. And California is seeing this where they're trying to give out rebates based on these things. There's no connection with the actual -- and I realize there's some shortcomings just using one metric.

And so, you know, the creative aspect of that is maybe introducing some other things in there, whether that's maybe high load type of buildings, buildings that have high internal loads, maybe that's a weather component with cooling degree days, or something along the lines that would make a little bit more robust-type test procedure.

And so I don't know what the answer to that is, but that's kind of our thought is just like, how can we bring to bear some of that information to help that metric be better in a way that gets us energy savings and you a clear direction forward? And so that's the part we're trying to figure out and how do you do that. I mean, ultimately, that's what I'm concerned about. And so that's what, when we're talking about that, that's what we're trying to figure out and help come up with a solution that maybe moves that brings more resources to bear.

Like we can -- I think California and northwest can provide resources to, you know, maybe get some of that information, help out the analysis. DOE can bring

some, you know, their consultants in terms of a test procedure.

I'm just -- you know, I know we're not going to talk about the test procedure, but my concern is is that maybe AHRI wouldn't necessarily have the robustness to develop that a little more further to the level it needs to be in accurate energy use. And so that's kind of what I'm thinking about.

MR. deLASKI: This is Andrew. I think that's all good, right. And sure, you know, let's work on those things, but that's not why we're here. We're here to negotiate the levels to the next DOE standard.

So we -- I hear you, you know, if we don't get to agreement, then you're going to bang away at DOE that some lower level is justified, and we're going to bang away that some higher level is justified.

The question is: Can we cover some ground today to try to merge the differences? What I look is the slide that DOE quite nicely prepared for us and left up on the screen, which is a different -- this is the analysis, right, this is the hand that we've been dealt, and we may not all like it. But it is the -- to borrow Javier's phrase, you know, I can live with it. I'm not very happy about that 3 to 3.5 increase in energy consumption for the small equipment, you know, that

bothers me. But there are many things in here that bother you guys, and there are things in here that bother me, too. The curves we talked about, there's a bunch of compromises in here.

But as Dave said, you know, there's a lot of uncertainty. But, you know, I can live with this. So you know, if we don't reach an agreement, you know, then we'll just continue to argue about what's right and what's wrong and what lead times are permissible and what's clear and convincing or whether it's the other standard. Okay? That's up to the lawyers to argue. You know, we're not here to argue those points I don't think.

What I'm interested in is, you know, is -- so we have proposed a level that would yield 18.2 quads of NES under the current analysis. And you've proposed a level that I did -- and the math wasn't that hard, it's 12.1 quads. Okay. So that's the delta, that's the difference.

DOE proposed a level in their NOPR that would yield 16.3. So we've got -- you know, that's kind of the zone, if you will. You know, we -- the question I would pose, you know, back to industry is -- is, you know, what -- we both need to think about, where is the flexibility to bridge that gap and bring us to a level that we all can live with given this range of equipment

classes.

So maybe what would make sense, Javier, would be individual caucuses, one idea, for each side to think about that question.

MR. RAMIREZ: Yeah.

MR. deLASKI: If not, the teams have come today with a revision to their proposal sort of in their pocket, because I don't have a revision in my pocket that I am prepared to share. I was hoping where we left last meeting, I thought was, you know, our request to you guys to think about, you know, where you can improve on level 2 to bridge that difference. And you know, so obviously you came back with nothing to offer -- to open, but we knew this wasn't sort of a half-hour meeting.

So I hope you've got something more than nothing. Otherwise, maybe it is a half-hour meeting today. But I don't think that's where we're at.

MR. RAMIREZ: Andrew, let me jump in. I would hope that we can keep you here for longer than a half an hour. And somewhat pulling, I guess, a Kennedy trick, I'm choosing to hear certain things. Because I've heard two different things and I'm going to pick the one that I heard that we want to get a deal done, we prefer to get a deal done. So that's the one I'm going to jump on.

And also, maybe we have to change our role a

little bit. And I say "we," the facilitators where we sometimes do what we call a "fa-mediate," facilitating and mediating, right. So we're putting out a little more of our mediator hat versus our facilitator hat.

And I do want to try what Andrew was talking about as far as having the groups break up for separate caucuses and see if maybe we can take a little bit of time with both sides in their separate caucuses just to have a little discussion before we see where we can move forward, if anywhere.

As Andrew has stated, the delta is 6.1 quads; right? That's the difference between the 18.2 and the 12.1 is 6.1. There's different ways of getting there, right, and that's that creativity part that, is there a way that we can play with dates, maybe the different size of the units, doing some tweaking here and there to find the number that both sides could hopefully live with.

But that's my suggestion is that let's break off into separate caucuses and maybe we can spend -- the facilitators can spend a little bit of time with each side.

MR. deLASKI: Javier, just a follow-up question. Are the consultants prepared to run scenarios for us if we need that they can run for different levels for different dates for different by product class?

MR. CYMBALSKY: So this is John from DOE and then we'll let John talk. We're also working on a little revised revision to the MIA following up on Dave's comments.

So maybe after John speaks, maybe we can break, let them do a little work, let me run through a phone call, and come back.

MR. deLASKI: I also don't want to be misunderstood. I'm all about getting an agreement. Okay? That's why we're here, that's what we've been working on this for several weeks now. And, you know, I won't consider this to be a success unless we reach an agreement, personally. So I don't think any of us want this to end up in a litigation, you know, a contentious, contested rule making. You know, that's why we've been working at this.

MR. RAMIREZ: Let me get John and Louis. Okay?

MR. HURST: Andrew, we agree. I don't think any of us wants to walk away from this without being productive. My preference is to put this in the rearview mirror and start working towards whatever we're going to work towards.

This is John Hurst with Lennox, I don't know if I said that, I'm sorry. I also think there's some other factors we need to consider. So John, you kind of beat

me to the punch, I appreciate that. We're not just talking about quads saved, there's other factors that the DOE needs to consider, and those considerations from manufacturers involve real people, real jobs, shareowners, people that own our companies as well. So those are important to us as well. Thank you.

MR. STARR: So this is Louis Starr with NEEA. One thing I point -- I think when the manufacturers crafted their proposal, part of that obviously was balancing the net loss present value, but also at the same time, look at the energy savings.

And so this has now changed with the new analysis, so I would hope that the proposal would shift a little bit to reflect that as well. In terms of if the numbers were the same that we had at the last meeting, it would make this a little bit easier. But now we've actually shifted down so that the savings that are available are now less. And part of the basis of how I came up with some of those numbers was based upon the savings. So those would adjust, I think, maybe their proposal would shift a little as well.

MR. SACHS: This is Harvey. John, did I hear correctly to you're still doing a revision of the MIA?

MR. CYMBALSKY: We do have some tweaks that I think we're making right now. But we wanted to address

the points that Dave brought up, yes.

MR. SACHS: Do you have --

MR. CYMBALSKY: We have slides.

MR. SACHS: You have slides, would it be --

MR. RAMIREZ: Yeah, so let's -- how much time do you need? A 10, 15 minute break or more? How much time do you need?

MR. SACHS: We've got two different breaks we're talking about. One of them is, what would it take to get the MIA before the caucuses where that combines the two, and I think that's really the question I'm asking.

MR. RAMIREZ: So is your preference to see what we have over here first before we --

MR. SACHS: Having spent this -- this is Harvey. Having spent this much time trying to derive the best possible numbers, as we caucus, it seems to me that it makes sense to have the best possible numbers before we --

MR. CYMBALSKY: It depends what card you've got on the river is the way I look at it, but yeah.

MR. SACHS: Cars on the river?

MR. RAMIREZ: He's not a gambler there. Let me ask the folks over here at the side table.

How much do you need?

MR. LAU: So we have GRIM results prepared, IMP

results that reflect the proposals made at the end of the last meeting. So we can see how those impact IMPB. Those numbers include revised conversion costs, as primarily focused on revised conversion costs.

In terms of employment, we had some rough numbers we had done last week. We hadn't presented them. I think we just need a few more -- we probably need another 20 minutes to clean those up where we can actually present the employment numbers if that's what the folks are interested in.

MR. CYMBALSKY: You want to do that? Okay. So let's get Mike Rivest up here. He'll go through the IMPB numbers, show you the manufacturing impacts for the two proposals that are out there with the updated conversion costs. And hopefully during that time Chris will get the employment numbers cleaned up.

MR. HUNT: This is Marshall Hunt, PG&E. Can we just have that e-mailed out, the -- what's going to be shown? We have the slide that's been sent out, but we don't have this.

MALE SPEAKER: You can take it out.

FEMALE SPEAKER: Yeah, I could e-mail it from here or e-mail it from my computer.

MR. RAMIREZ: We're just going to get this e-mail for the folks.

MR. HUNT: Marshall Hunt, PG&E. Thank you.

MR. RAMIREZ: Okay, Michael. For the recorder, too.

MR. RIVEST: Mike Rivest, Navigant. I'll be presenting the revised cash flow analysis numbers. And just want to go over with you the inputs that have been changed since the last meeting.

There have been no changes to the manufacturing production costs. So these are still coming out of the most recent engineering analysis. The shipment forecasts are consistent with what was presented last time and what was presented today. And the markup scenarios are also the same. There's been an update to one of the financial metrics, I'll go over that.

Major change on the conversion costs. I'll explain what we did over there. Standards year, we modeled the proposals, and we -- we've -- we have a tool, which isn't yet -- I wouldn't call it a fully operational two-phase GRIM, but it's something that will allow us to develop additional scenarios that as, you know, if you continue to negotiate today, will be able to model additional GRIM scenarios. And I'll have the results for the two-tier proposals that were -- that were laid out last week.

Had a careful look at all matters of capital

expenditures, R&D expenditures, looked at the previous base case numbers to make sure that we were properly calibrated. I notice that the figures that had been used for capital conversion under the base case were -- were high compared to the shipment numbers, which are relatively flat. So I recalibrated -- we recalibrated the capital cost to be more in line with the depreciation to reflect an industry with a very flat, steady gross.

I think I was looking up base case shipments increasing 40 percent over a 30-year forecast period. So this is a very slow growth, and I would expect in that context, the capital, you know, the normal capital expenditures to be replacing the R&D expense, basically. So that's why those two numbers are now more in line.

During the last meeting there were concerns over the capital conversion costs that were used in the GRIM. So the manufacturers asked to see us to review the interview notes that we had and some of the estimates that were used in the GRIM. So we had additional interviews and Chris had incorporated those for last week. So we've incorporated everything that we have on conversion costs up until now into this revised GRIM.

And on this table, you'll see the previous numbers in parens on the other -- sorry. Yeah, I would think so, yeah. So the new numbers in parens and the

previous numbers outside them.

MR. HUNT: Could you speak up, please? That's a critical point. It's Marshall Hunt. I couldn't hear what you said.

MR. RIVEST: Okay. What you're seeing here on this table are the product conversion and the capital conversion costs for each of the trial standard levels, the numbers that we had last week, and also that were in the NOPR. And here you have the numbers that incorporate all of the most recent information that we received.

MR. HUNT: In parenthesis?

MR. RIVEST: Correct, in parenthesis, that's correct.

MR. HUNT: The new numbers are in parens. Can I extract, say, TSL-1 from TSL-2 and get a differential moving from 1 to 2?

MR. RIVEST: That's correct, yes.

MR. HUNT: Thank you.

MR. RIVEST: These are the revised GRIM numbers for a single-tier standard effective in 2019 at the TSLs, the TSLs from the NOPR and the TSL-2.5 and 3.5 and 5.

MR. HUNT: What was the next slide?

MR. RIVEST: Sure.

MR. WHITWELL: Hey Mike, this is Bob Whitwell. I've got a question for you: Which scenario are these?

In the prior analysis there were two scenarios, the high and the low.

MR. RIVEST: This is the higher impact.

MR. WHITWELL: Higher impact scenario, thanks.

MR. RIVEST: Didn't do the lower one, didn't have time. We were literally working on these at midnight.

MR. deLASKI: Could you say, Mike -- I mean, so I'm just jotting these down on the yellow line from the prior that we don't have -- I'm colorblind, the top line, whatever that is.

So what would it do to the top line? I mean, this is basically moving -- it's a little bit more severe -- actually, no, it goes in both directions depending on the level.

MR. RIVEST: I think -- you know, I didn't compare. I mean, I eyeballed --

MR. deLASKI: I mean, right now it's showing -- it's a little -- slightly more, it's additional .2 percent the cost to TSL-1, it's a little less severe at TSL-2, it's a little more severe at TSL-2.5. You know, so it's not -- the impact is not -- it's not -- it doesn't correlate.

MR. RIVEST: No, it shouldn't correlate with anything because it's -- the capital costs are revised.

MR. deLASKI: Based on the interviews with manufacturers --

MR. RIVEST: Right.

MR. deLASKI: -- based on your input individual --

MR. RIVEST: Right. And I assure you and I assure the manufacturers here, this reflects all the information we've received.

MR. deLASKI: Can you say how it would effect the top line, the high estimate? I mean, would it be proportional or not necessarily?

MR. RIVEST: I don't -- honestly, I didn't look at it. We didn't run that scenario. I wouldn't want to speculate.

MR. LAU: I think I can speak to that.

MR. RIVEST: You want to speculate?

MR. RAMIREZ: State your name for the record.

MR. LAU: This is Chris Lau with Navigant. So there were -- as you saw on the first slide, there were several things that changed including the financial metrics, conversion costs, actually those were the two primary changes.

However, I would say that the -- when you look at the top line number, the rosy scenario, if you will, the primary driver -- one of the primary drivers of that,

that keeps it from getting exceptionally rosy are the conversion costs. So if we were -- if we had time to run the other model again, we kind of have some indicative results here. They are generally slightly less rosy, but still --

MR. RIVEST: There were two counter-availing effects here of changing the capital costs percentage made things increase the base case industry value, which is the denominator in the percentage loss. And the increase in suspend for capital and product conversion is, you know, goes the other way.

And then, you know, I spent a lot of time looking at 3 and 3.5 and why there wasn't a bigger difference. And it goes back to the data feeding in the model. I mean there's just, the shipments aren't any different, the revenues aren't any different, and the capital costs were not really that different because the products being shipped aren't that different.

So you know, the downstream analysis is not capturing a lot of difference in these products, so that's why the GRIM's not capturing a lot of difference. Although, there is that whole 1 IEER difference. So that's just a reflection of what's feeding in.

MR. deLASKI: Yeah, this is Andrew. I'm looking at slide 77 from the last meeting which showed the two

figures, the two IMPB over time under the two scenarios, the preservation of gross margins and the preservation of operating markets. And so as I jot in -- so I pencil in those numbers, it looks like it sort of smooths out that curve, frankly. This little blip at 2.5, which was a little knee -- looks like it's a more smooth curve, but the general shape is the same. There still is, as you guys have pointed out, a pretty good -- I guess I'll call it inflection point at 3.5 in terms of manufacture costs in terms of this model.

MR. RIVEST: The big jumps at 4 or 5 -- 4 or 5.

MR. deLASKI: That's what it was before, and that's what it remains, it seems to be.

MR. RIVEST: Right. I mean, 4 and 5 are significantly different from a 3. We're talking about IEERs and the, you know, up to 20, 20.

MR. deLASKI: There's also a big difference between 2 and 2.5, 50 percent increase between 2 and 2.5.

MR. RIVEST: That's like 13 to 15, something like that. It depends on the class. I'll move onto the next slide if that's okay.

So here are the results of the two-tier modeling of the proposals. And you'll see, I mean, the results are not unexpected. What I want to say is that right now it appears that the delay from, say, whether it's a 3 or

4 or whatever is negated a little bit by the imposition of that first tier.

And so -- and really, what we're capturing in this modeling is strictly the time value of money. The fact that we're pushing out investments, say, at TSL-4 or 3 or 2.5. And if we're moving them from 2019 to 2022 and 2024, right now, all the model is doing is it's discounting those investments for several years more. So it's capturing time value of money differences, but what it's not doing is capturing any additional benefits from moving a standard date from 2019 to, say, 2024.

And in my next slide here -- and I haven't modeled that -- and before I do, I sort of wanted to -- to give you my thinking and sort of experience from previous rule-makings where we modeled two tiers of things that were considered in the modeling.

So right now, we have product conversion and capital conversion costs coming in for tier 1 at 2019 or 2018. And then we have another series of product conversion, product and capital conversion costs coming in at 2022 or 2024. And we're treating them as additive. So there's no assumed synergies here because I hadn't noticed, you know, at this point I had no data to presume anything else. So it's a worst case.

In previous rule-makings, one way that we've

modeled the gap years, that is say, for example, the year between 2019 and 2024 to show the benefits of those additional years. Now, whether we're talking about R&D or we're talking about additional capital, the company in our model is spending about 2 percent of revenue. So $26, $23 million a year on R&D during those five years and $26 million a year in capital, just to replenish, you know, the product life cycles that are ending to replenish the tooling that's used.

So the question is: Should part of that capital be counted towards the product conversion costs that we're incurring to meet the second tier; right? So are we making those costs coincide? What I can tell you is, in other rules we've taken that into account and said, well, yes, I think it's reasonable to say that part of the R&D effort in those five years that are in the baseline can now be -- you know, used for meeting that standard.

So if we do that, it would show an additional benefit to that 2014 delay or that 2022 delay. It's not necessarily enormous, but I think it would reflect more realistically the benefits that -- that, you know, inherently we know that are there.

MR. deLASKI: Mike, can you go back a slide?

MR. RIVEST: Sure.

MR. deLASKI: So I'm not sure I'm taking this onboard. You're showing that in the right-hand cell there, here to a 20 -- TSL-2.5 effective 2024 under the pessimistic scenario, the one that's called the preservation of operating profit would reduce industry net present value by 25.8 percent?

MR. RIVEST: Depending if the tier 1 is coming in 2018 or 2019.

So -- so the first -- this is my understanding of the three proposals I heard last week. I had the same misunderstanding as Greg, I lumped the TSL-2.5 for all three product classes.

MR. deLASKI: Okay.

MR. RIVEST: But what I heard last week was, the first -- what the first offer was a 2019 tier 1 with a 2024 tier 2 at 2.5.

MR. deLASKI: Not exactly, but I think --

MR. RIVEST: Not exactly. That would be 24.9, which is slightly less severe than, say, the proposed rule, which was what, TSL-3?

MR. deLASKI: So here's what I'm having trouble putting together. In this slides -- in the previous slide you just showed, you showed that a standard effective in 2019 at TSL-2.5 would reduce industry net present value by 22.3 percent.

MR. RIVEST: Right. That's what I opened up with by saying that the cumulative impact of having to comply with an EL-1, a TSL-1 in '19 and then that 2.5 in '24 is actually worse.

MR. deLASKI: I see. In your model.

MR. RIVEST: In my model, if I don't take into account some synergies, if I don't take into account that some of those R&D -- that five years, you know, is going to be used to -- some of that spend is actually spend they would have done anyway, in other words. Or that is going to coincide with other things they would have done to upgrade their -- you know, to meet other requirements either from the market or from other regulations. That's what I was saying.

MR. HUNT: Marshall Hunt, PG&E. What about the fact that TSL-1 is ASHRAE 90.1 in general?

MR. RIVEST: So I went back through all the interview notes, and it was clear and the people were telling me and several manufacturers said, "I have no compliance cost at TSL-1."

I'm sorry. I went back through all the interview notes and it was -- it was part of the interview, several manufacturers said, "We have no compliance costs at TSL-1," and some said they did. So that -- it's actually embedded in those numbers.

MR. deLASKI: I guess what I'm having trouble with, Mike, is how the manufacturers have stated really clearly what their proposal that they prefer a two-stage approach that they are tier 1.

MR. RIVEST: Well, that's why --

MR. deLASKI: So that's why -- I don't know these numbers, how they help us, so --

MR. RIVEST: Well, what -- and that's why I'm saying that I believe we have to model some synergies to be realistic of the benefit of that two tier.

MR. deLASKI: I mean, there's -- right. You guys have been really clear with this that the later date is a big help, too. So --

MR. RIVEST: Right. So some of that -- I don't know if it's the TSL-1 investments that can be reduced -- reduce the TSL-2, the stage 2. Or it's saying, well, part of that R&D, that $23 million a year can be used to comply to the standard.

That's, you know, I can -- what I was going to propose to do is to run the model assuming 50 percent, which is not a decision, it's just something that will allow you to see the impact of those factors, you know?

MR. deLASKI: I mean, it strikes me, and again this is a manufacturer issue for you guys to comment on. But it strikes me that, you know, when you have more time

then you can plan. You can stage things in ways that are ultimately going to be -- when you have to do things in a rush --

MR. THARP: Rusty Tharp with Goodman. I'll say one of the things that I seriously doubt any manufacturer commented on. I know we don't, I know the numbers not in there are the numbers are the conversion -- the capital costs associated with the refrigerant conversions. So those, as we manufacturers redesign products for an alternate refrigerant, whatever that might be, there's a bunch of costs there, right.

So as part of the White House Counsel Environmental Quality Event, industry announced that they were going to be spending $5 billion over the next several years as part of the refrigerant process, right. So that's a huge chunk of change. All that cost isn't considered when we're talking about the impact on manufacturers.

MR. SACHS: Rusty --

MR. THARP: So that's part of it, too.

MR. SACHS: -- that's -- whether I personally agree with the White House or not on that particular thrust is irrelevant. But I just want a little bit of pat on the back that that's the reason that we listened on the two-phase to try to wring as much synergy as

possible out of that mandatory revision.

So this -- this, in part, is why we're all a little confused by Mike's conversions. But we were just giving that exogenous external force. We really were trying to get the most bang for the buck for you guys on that.

MR. RAMIREZ: Let me get Karim.

MR. AMRANE: Karim with AHRI. I guess a question for Mike: Can you run the scenarios today?

MR. RIVEST: Yes, yes.

MR. AMRANE: I think it would be good to know.

MR. RIVEST: Right. If you provide me assumptions -- revised inputs, we'll run, you know, sensitivities. Don't feel compelled to -- don't be reluctant to ask for a scenario because it locks you into the answer. I mean, this is exploring the bounds here, I think. And --

MR. deLASKI: What I'm hearing and I take Rusty's point to heart which is that there's a huge commitment to industry with the refrigerant side if you want to do the efficiency investment at the same time. And what the increment is of that number, it almost doesn't matter; right? Because the point is that you want to do them at the same time.

MR. SACHS: This is Harvey again. And what does

matter to me, because I haven't been able to keep it all in my mind is, what was the total of the capital in product conversion costs that you calculated, Mike? How does that compare with this commitment on refrigerant conversions? I mean, are they roughly the same size?

MR. RIVEST: No, we can't compare the industry's 32 billion. And this is where we're modeling 1.3 billion. So we're talking about a dollar per dollar. So for this industry we'd be talking of, if it's a dollar per dollar, it would be 1.3 billion for this industry alone if that ratios hold.

MR. SACHS: I'm sorry --

MR. RIVEST: If the numbers hold. Looking at the census and manufacturers, the refrigeration industry is a $32 billion industry revenue-wise, and you mentioned a investment of $32 billion? $5 billion. Okay. So 5 for 32.

MR. THARP: Rusty Tharp from Goodman. I think that includes chemical manufacturers, refrigerant manufacturers.

MR. RIVEST: Oh, I see. So the whole supply chain?

MR. THARP: So it's not just equipment manufacturers.

MR. RIVEST: But we're not modeling the whole

$32 billion industry here, we're modeling a subset of that.

MR. SACHS: But somewhere in the GRIM, I assume, you figured the amount of conversion costs that would be required and from Rusty, doing my own adjustment, I'm getting a sense that there's somewhere in the range of 1 to $3 billion for this -- for RTU refrigerant.

MR. RIVEST: Oh, no, no, no.

MR. SACHS: Maybe less than that.

MR. RIVEST: Yes.

MR. SACHS: And I'm just trying to get a sense of how the efficiency, per se, investments you're estimating compare with this refrigerant investment so I can get some sense of the amount of synergy. That's all I'm trying to do, round numbers.

MR. RIVEST: Well, if you just describe what needs to be done, is it really that different? I mean, it's almost a blank sheet of paper in both cases here. You're going to have to redesign a product and test it and certify it in both cases. So would it be reasonable to say they are equal magnitude as a starting point? No? Why not?

MS. MEYERS: This is Karen with Rheem. And I think I would disagree with that assumption. First of all, because there's a lot of unknowns.

When you go to a new refrigerant, it will probably have effects downstream more than just upgrading an efficiency level. Maybe Charlie McCrudden, who's not in here, would want to speak to that point. So I think there's a lot of unknowns.

There's also going to be a huge change in the whole handling of the equipment with different refrigerants. It's going to be using a new compressor designs that we've not ever experienced before. New heat exchanger technology that we've never done before, nor have we manufactured it before. So all those new fan designs, coil designs and stuff are likely -- don't know for sure -- but pretty educated guess that it's going to be way different than what we do today, which will mean different manufacturing processes.

And then just the whole downstream effects, I think are going to be pretty significant. And as are the replacement costs, et cetera, which is, I know outside of this, but -- so I think it's a completely new ballgame.

It was when -- in a much smaller degree when you went from an R-22 product to a 14-A product, completely new componentry, fin designs, coil designs, et cetera. So I'm basing these comments on that, which is not going to be near the order of magnitude as this is.

MR. RIVEST: Okay. So let me make another

controversial statement here to get the reaction. Let me make another controversial statement to get a reaction here.

If the timing was perfect, would efficiency improvements from a product development point of view be costless? Because, well --

MS. MEYERS: Say that again?

MR. RIVEST: If the timing was perfect, right, would the efficiency related redesign be folded into the refrigerant redesign and therefore, the incremental cost associated with meeting the standard be zero?

MR. THARP: Rusty Tharp with Goodman. Definitely not.

MR. RIVEST: Okay. All right.

MR. THARP: Absolutely not. Next.

MR. RIVEST: All right. I like to know the bounds. Could you expand on that, though?

I mean, so right now I've got the other extreme; right? I've got the extreme that says all of the costs of the efficiency are going -- are being baked into this standard. And no -- no awareness of the EPA rules, which might be reasonable for a '19, but probably not for '24. So that's why I'm trying to get a middle ground here.

MR. deLASKI: Mike, I think that is reasonable. I mean, qualitatively, it's the reason why we're looking

at the later date and getting the number for it is, I'm sure, difficult to do pretty much because you don't know what the refrigerant rule is yet.

So there's a lot of uncertainty, but it strikes me that that's the reason that we're talking about a two-phase proposal. That's why we've agreed to it, the structure.

MR. THARP: Rusty Tharp with --

MR. deLASKI: To reduce manufacturer impacts, to mitigate them, and your analysis shows the opposite effect. So apparently it's flawed, and you're looking for why to help you model it.

MR. RIVEST: That's why, if nothing else, I'd like to model 50/50 and see what it does to the results and, you know, people don't have to agree with anything. But see what --

MR. deLASKI: 50/50, what do you mean 50/50?

MR. RIVEST: I would reduce -- I would take half of the 26 million a year. Right now, in the model I'm projecting $23 million a year on R&D in those years, '19 through '24, for example. And I'm projecting 24 -- $26 million a year in those same years for new capital to replace capital that's being depreciated.

I'd like to take half of those dollars and put them against to reduce the capital expenditures and the

R&D expenditures associated with the standards to capture some synergies there. Just to start with that, see how sensitive the results are to that assumption.

MR. RAMIREZ: I don't think there's any harm in running it; right? Take a look at it.

MR. RIVEST: And I can tell you, I've been through this process with other rules, and we did that.

MR. deLASKI: Right. It's not the first time we've done it here.

MR. RIVEST: No.

MR. deLASKI: We've discussed before, its been done in other dockets for similar reasons.

MR. RIVEST: For similar reasons, and we were coming up with the same, "Hey, this makes no sense." Because -- it wasn't you at the time, this goes back a long time. So this was -- the one I remember most vividly was clothes washers for the two-tier, supposedly vertical, horizontal.

MR. RAMIREZ: Let me get Louis and Dave. A while ago you wanted -- Okay. Louis?

MR. STARR: This is Louis with NEEA. So I have a question, I guess with the manufacturers I'm wondering are, do you know while in 2024 as a company what kind of IEER levels you're designing for? And then -- I mean, I'm assuming the answer is yes, but maybe not.

And then the other question is: Are the groupings of the TSL levels representative of the technologies that you design around? I know they chose those levels, but are they -- you know, are they reflective to the IEER -- are you designing to the IEER level or are you designing to technologies that get you there and do you know them that far out? I mean, you're making these decisions somehow and I'm trying to figure out how those are being made.

MR. WINNINGHAM: Louis, I would say the outcome of this is going to have a huge impact into those things. We could have a plan of what we think we're going to design to, but these negotiations in this action will have a -- it's a direct relationship.

I don't think any of us could sit here and say, "In 2024, here's what we're going to be designing for at the levels above federal minimums," because the outcome of this will have a direct impact on that.

MR. SACHS: This is Harvey. And I have a question stimulated by Karen's comments. But it's a question really, I think, for Sami.

A quick question to Dr. Google suggested that the A2Ls will be using roughly the same POE lubricants that we're using today. And I'm hearing some heads -- seeing some heads shaking, that roughly the same that the

410-As we're using; is that not true?

MR. ZENDAH: Sami Zendah. That's not true. There are oils, we're working on them now, but it's not the same. It's not going to be the same. We came to that conclusion.

And by the way, a refrigerant does not mean you're going to get a performance improvement from them going forward. So that's also debatable. There are some that takes you backwards, some will improve, it depends what this industry's going to select, going forward. We're going to be impacted quite a bit by this, as well.

MR. SACHS: That's why I asked you, and just while the record is running --

MR. ZENDAH: Sure.

MR. SACHS: -- in my own thinking, I have not assumed that the A2Ls would lead to an efficiency improvement.

MR. ZENDAH: That's correct. So the oil situation could be manageable, I mean, as long -- as soon as we get into some idea where we're going to end up. So there would be some oils -- right now we're dealing with some major issues like discharge temperatures are going, we need to bring -- DLTs, so discharge lane temperatures of the compressors. You've got to manage that, especially with R-32 which everybody thinks that is the

one, but we don't know that yet.

So there's several options, I mean, there's -- again, refrigerants and oils and testing. So that's why I'm here. I'm trying to figure out where we're going in 2024 and what doubles --

MR. SACHS: Much appreciated and that's very helpful and I think I saw more unanimity among the shaking heads than I've seen in this room.

(Laughing.)

MR. RAMIREZ: So let me ask the group here, did you all want to take a brief break or do you want to keep rolling?

Now, Chris has some numbers as well that I believe that he's going to be presenting. But let's go ahead -- 10 minutes? So let's start back up here at 11:00 o'clock, then. Thanks.

(Recess taken.)

MR. RAMIREZ: Okay. I just want to take care of a couple of quick housekeeping issues before we move on.

Brenda has notified us that they're having some special event here tomorrow and getting in may be a bit of a logistical --

MS. HOFFMAN: Nightmare.

MR. RAMIREZ: I was trying to find --

MS. HOFFMAN: Challenge.

MR. RAMIREZ: Oh, challenge. Thank you. I was trying to find something a little less harsh.

And so what we're going to need to do is, you have two entrances coming into this building. You have the one where you come in through the front, if you take a taxi that's usually where they drop you off. But on the back end there's another one, so if you walk around the building, there's another entrance right there. So as you're coming in normally, you see folks coming in from both sides, it's on that back end where you have to enter.

And there's a little kiosk there when you come in, you'll see two young ladies sitting helping people with their passes. That's where Brenda's going to be at to help you. It's suggested that you come in between 7:00 and 7:15 to avoid some of the crowds and some of what may be going on here tomorrow. It's a suggestion, so if --

MS. MEYERS: The start time is at 8:00 tomorrow.

MR. RAMIREZ: So if we're rolling at 8:00 tomorrow, I guess we -- well, it's up to you all if you want to give a little extra time in case somebody gets held up.

MR. deLASKI: So you mean just the normal handprint, the doors that are closer to --

FEMALE SPEAKER: Where you get to stick your laptop, your --

MR. RAMIREZ: Yeah, it suggests that you enter through that door. So maybe go through the outside and come in through that door because it sounds like that front lobby area is going to be jammed up.

MS. MEYERS: Would it be better to move the location?

MR. RAMIREZ: I'm sorry, what was that, Karen?

MS. MEYERS: Would it be better to move the location?

MR. RAMIREZ: Where to? We could discuss that before the end of the day.

MS. MEYERS: Or even L'Enfant. I mean, I hate -- I don't like that conference room, but, you know, just a suggestion.

MR. RAMIREZ: Yeah, so we'll wait for John to come in to talk about that to see if there's any availability over there or not. And Brenda's looking like, what the heck are you just doing to me? (Simultaneous speaking.)

All right. Yeah, counsel was just telling us that the locations of these announcements for the public are announced here for the federal -- in the Federal Register so we probably have to keep it here because we

wouldn't be able to change that announcement quick enough.

MR. STAS: If we weren't so last minute, you know, but it's kind of last minute.

MR. RAMIREZ: Yeah. So we're just going to hit the deal with the entry issues. So again, it's a suggestion to avoid some of the craziness that you get in between 7:00 and 7:15, suggestion. What you do with that's up to you.

FEMALE SPEAKER: Do you want to know when it ends or --

MR. RAMIREZ: So Brenda, do you know how much time that craziness is going to be going --

FEMALE SPEAKER: It starts 8:30, but with the security and all, you know, all we have to do to get ready for what's going on (inaudible).

MR. RAMIREZ: So do you think that if we started at 9:00 o'clock tomorrow that we would bypass that?

FEMALE SPEAKER: There have been made flights to be here earlier soon (inaudible) get up early, helping out here just a little -- yeah.

FEMALE SPEAKER: And Charlie was -- was your question when the meeting ends? And the meeting ends at 4:00 tomorrow.

MR. McCRUDDEN: No, my question --

FEMALE SPEAKER: What, was it 3:00?

MR. McCRUDDEN: Yeah, we're 3:00 on the second day.

MS. MEYERS: Okay. 3:00, yeah.

MR. McCRUDDEN: My question was what time the ceremony ends. Because for me, it might be easier to listen in on the phone and even if it is to just hang out in the courtyard to participate that way just -- for me personally, I can't get here that early, just -- I've got family drop-off issues to deal with. So we can avoid the hassle, but still participate.

FEMALE SPEAKER: I don't think the ceremony is going to be that long, it's just all of our preparation and that's what kind of delays stuff, so --

MR. RAMIREZ: So we can finalize that later today if we need to. All right.

I'm sorry, yeah, go ahead, Charlie.

MR. McCRUDDEN: So this is Charlie with ACCA and before we get started, I just want to make one comment. I had to be away for the last discussion and I think someone made a reference to me or at least to the contractors viewpoint on some things.

And what I wanted to say is we're talking about a lot of sort of intangible issues here. And one thing that I would have said if I was here is that, you know,

when we change standard levels and we increase them in certain ways, it does have an impact downstream on contractors.

And sometimes I think we may forget that, you know, the manufacturers do produce this equipment, but they're not actually the ones selling it, per se. So a lot of contractors have a hard time selling equipment when it's at a higher standard. And it's hard to capture that, and I know some of the modeling does look at it. But you know, this is some as we're sort of trying, you know, to reduce the delta or find something in between, I think we should remember that, you know, when the standards are increased to a certain level -- and I don't know what that is because I think it would be hard to model -- it does make it more difficult to sell to the end user -- to the customer. And unfortunately, there is no national association of building owners about to buy, you know, a new piece of commercial HVAC equipment.

Had there been one of those groups, I think their membership would be hard to build. But those folks I think need to be represented in some ways, we're the closest ones to them. So as we move forward, let's remember that we can lose potential energy savings when people find it harder to take it up. So thanks.

MR. RAMIREZ: All right. Thank you.

MR. SACHS: This is Harvey. And I would just like to salute ACCA, Charlie's organization, for its at least decade-long work to help contractors with the value proposition and with differentiating the best contractors from those who are content to deal purely in the commodity world, and an awful lot of work has gone into that, and thank you.

MR. McCRUDDEN: And in response, I'll say thank you, Harvey, because you're one of our biggest advocates out there.

MR. RAMIREZ: All right. Now, Chris, you have stuff -- you have some numbers you'd like to review with us?

MR. LAU: Hi, this is Chris Lau from Navigant. So we've heard some discussion, both at the last negotiation and earlier this morning about the employment numbers that are published in the NOPR notice last fall.

So I wanted to walk through some of the -- well, I guess I wanted to walk through some revised numbers in that we're trying to -- we're wrestling with this issue of what industry employment -- what would be reflective of direct employment in the -- what are we calling it? CUAC and -- in the CUAC rule -- CUAC rule.

And so really a lot of this is driven off of data from the annual survey of manufacturers, which the

U.S. Census publishes. And the last one was run in 2013, so we based the content off of the industry code 333415, which is air conditioning and warm air heating equipment and commercial industrial refrigeration equipment.

And so we go through that data, that industry has revenues of roughly $31 billion and they publish the direct labor percentage, their direct labor costs, and it's roughly 8 percent of revenue. And the figures also indicate an average production worker wage of roughly 37 to $38,000 per year. And so these are the figures that drive our analysis.

So if we take these figures and apply it to the shipment values, the MPC values, and the markups, what we get is, you know, roughly we have $1.2 million revenue in the GRIM from 268,000 units per year. We take 8 percent of that it's about, $96 million, and if we divide 96 million by $37.7 per year, we get about 2,500 production workers for the industry.

Now, I think that is still lower than what some of the folks in the room have indicated in the past. And so what I'd say is that one thing to keep in mind is what we're modeling here in that engineering analysis is essentially the core product, right. There are no accessories, no add-ons, there is no replacement parts in the shipments model.

So I think that may be accounting for some of the difference between the figure that folks have in their head which they haven't actually shared. And what's presented here, that 2.5, you know, 2,500 production workers. I think it may be worthwhile if folks are uncomfortable with this 2,500 numbers talk about what may be driving some of that difference. Because at that point, this is the data we have. And as far as we know, this is reflective of the industry now. We're only talking about 1.2 billion out of the $31 billion group that is the next code. So maybe this is a more labor-intensive product line than the average.

MR. WINNINGHAM: This is Dave Winningham with Allied. First of all, going back to the NOPR, the NOPR estimated 1,085. And now we're kind of reestimating at 2.5K. And I think we would agree with your assessment that we think that is still significantly low. I think the things that you alluded to are probably the fringe, it's not the core of what our direct production workers do.

I mean, I'm looking over at Jill and we were just kind of throwing out some information. I mean, we have a plant that's probably not quite, but close to half of that number, and we're one manufacturer.

MR. RAMIREZ: And it's all commercial AC, every

24 -- I mean, how many hours --

MR. WINNINGHAM: I asked them to parch that out, yeah.

MR. RAMIREZ: So they bill completely to that one product?

MR. WINNINGHAM: I have one plant in Stuttgart, Arkansas, and they have some products that build below 65K, but 80 percent of what they do is this stuff.

MS. HOOTMAN: So Jill Hootman from Trane. I have four plants that build this product, one of which is all dedicated to this product. And that one alone is 872 directly in commercial air conditioning. There's another hundred for commercial warm air furnace or 102 or 101, I'll have to look at my numbers again, but very close to 100. And there were three additional plants, which are smaller as far as the portion that is directly to this work. So I mean, I can easily come up with 1,200 likely.

MR. deLASKI: Just a question for clarification, this is Andrew. So 1,200 in the 65. What's the remainder, 760?

MS. HOOTMAN: Right.

MR. deLASKI: You're not counting --

MS. HOOTMAN: 760,000, right.

MR. deLASKI: Not counting above that?

MS. HOOTMAN: Right.

MR. deLASKI: But those are coming out of the same plant, though, I would think the larger ones that are.

MS. HOOTMAN: We build one product we build in Clarksville, Tennessee, five through close to 160 tons.

MR. deLASKI: Okay.

MS. HOOTMAN: Now, I took out the direct workers from 63 tons to 160. I took out that.

MR. deLASKI: To get to that 7 whatever? 872 number?

MS. HOOTMAN: Right, 872 number took out that. There's actually additional workers in the plant.

MR. deLASKI: And what you're doing, if I understand right, is you're -- you're also -- you're trying out with an estimate that sort of subtracts out additional value in that equipment that somehow not directly related. I'm trying to restate back to you what --

MS. HOOTMAN: I also took out management, right.

MR. LAU: Right, so --

MS. HOOTMAN: Even though it's floor management, but it's management. I took that out.

MR. LAU: I mean, the way we would term it, I think what we call production workers are -- all assembly workers up to the line supervisor, plus, you know, the

focus touch the product. So a truck driver doesn't actually assemble the, but he's touching it, so we include those heads.

And so what I'm hearing -- you know, we thought perhaps, you know, recognize accessories, add-ons, whatever, wouldn't double with this number, but that's some piece of it.

MR. RAMIREZ: Any other questions or comments for Chris?

MR. RIVEST: Bill, this is Mike Rivest. I've been doing these rooms for 20 years now, and it seems that whether I'm talking about transformers or AC equipment or white goods, direct labor is about 8 to 9 percent of your sale -- your revenue.

Now, a lot of productions been moved to Mexico --

MS. HOOTMAN: Right, I took out my Mexico.

MR. RIVEST: But that labor rate, maybe a year, 36,000 high and that's -- you're dividing everything by that; right?

MS. HOOTMAN: Yeah.

MR. RIVEST: So it ain't pretty.

MS. MEYERS: Mike, I didn't look at it as part of percentages or revenue.

MR. RIVEST: Right.

MS. MEYERS: This was just literally going to --

MR. RIVEST: And that's about what it is, 8 to 9 percent. Now, it is -- that wage is really big assumption and we don't -- we don't have it broken down if it's domestic.

MS. HOOTMAN: Pretty light.

MR. RIVEST: 37 for the U.S. is like, but as a mix between your -- of your whole --

MS. HOOTMAN: But I took out Mexico because I figured this was U.S. workers. So I took out Mexico, that's -- I didn't have Mexico in it.

MR. RIVEST: Well, maybe industry can provide your bottom down, your bottoms up estimate of a lower force our top-downs doesn't seem to agree with your reality, so --

MR. RAMIREZ: I understand the concern with the impact that it has on the workers. As far as the numbers that we're looking at to negotiate, what is it that you're trying to clarify here in order to finalize a number?

MR. WINNINGHAM: The higher you go in TSLs, the larger the impact on shipments and the bigger the impact to the industry and on jobs. It's -- I mean, it's very simple. When the industry shrinks, people lose jobs.

MR. RAMIREZ: So do we need to agree on a

certain number here in order to do that?

MR. WINNINGHAM: I think it's just a relationship of that and having a -- a number that is grossly underestimated as far as employment, the total numbers of employment, and the impacts of these standards on those employees is significant, and I don't think it should be underestimated.

MR. LAU: So another way to get to that end, we've heard from a few folks in the room. I know there are roughly nine major manufacturers; right? And what we're hearing is domestic employment per manufacturer is somewhere in the 800 to 1,000 range.

And so what, you know, just in the back of my head, that on numbers, but what I'm hearing is that industry employees is 8 to 10,000 production workers. And if you include non-production workers, that's probably like another 20 to 50 percent; right? So in some total we're talking about 15,000 people that work on CUAC products.

MR. AMRANE: This is Karim with AHRI. I guess, what do you want, Mike? I mean, maybe we can give you some numbers if you want. I mean, maybe that is what we can do.

MR. RIVEST: If you're willing to sit down, let's do it plan by plan. I mean, I'll add it up. I

looked at the interview notes, I don't have that level of detail. I couldn't do it.

MR. deLASKI: So this is Andrew. It strikes me that, you know, I'll accept the stipulation that the numbers are higher than what DOE has said. I don't know they're 15,000 either, I don't know. You just heard from two pretty large manufacturers. I don't know if all nine are the same size as the two that you heard from. So I suspect that somewhere else between those two numbers.

Jobs are important, no doubt about it, you know, that's part of what we're talking about here is the impact on, you know, is trying to balance the factors that we've said now several times of the impact on the manufacturers that are shareholders, their workers, and the impact on the nation as a whole for energy savings, economic benefits, and environmental benefits.

So that's the balancing act and Dave is rightly pointing out that there's one factor in his estimation that's not -- the number is lower than what it should be. So whether it's 5,000 or 7,000 or 3,000, you know, I don't think that's going to impact -- it's a very important number, but it's not going to -- I think we can continue with our discussions without that impeding us.

We're not going to negotiate that level. It's a matter of fact, right, so these guys can give you data

information and help you and hopefully you might even reconcile it. Because I agree with you that it needs to -- you know, there needs to be something more than just, here's what they told me, right. It has to comport with some methodology for how you -- how do you reconcile it with your numbers? So --

MR. SACHS: This is Harvey. And the first thing I want to say is that I've had just -- had jobs disappear around me like my own several times in my life. I'm very sympathetic to this.

Second thing is -- through the School of Hard Knocks -- the second thing is, direct production numbers, assembly workers in this industry is a really bad measure because these products are largely assembled in part from things that are bent and shaped and machined in plant, and in part from things that are bought. So they're upstream jobs. And copper, aluminum, metal fabrication, paint, and all sorts of stuff. So there are a lot more jobs.

But, even if we assume that there are 25,000 jobs, it's a small fraction of one month's change in employment in a dynamic society. So that it's some -- it's very important to me, with my wife as a retiree from manufacturing and my son very actively employed, it's important. But it's, as Andrew says, it's one of the

factors.

And I don't think we can do our work if we over personalize it with all respect I have for the people who are in those plants. And I visited as many of those that I've been available -- has been possible for me.

MR. RAMIREZ: Any other questions or comments for Chris?

MS. HOOTMAN: So are we getting -- did we agree? Are we getting numbers? Or I don't quite know where we left.

MR. SACHS: Jill, this is Harvey. And I'm not sure that --

MS. HOOTMAN: I was just kind of looking at Karim and Mike. I don't know if we --

MR. SACHS: I would want to ask if I thought that any kind of a number would make a real difference in what we're trying to do.

MS. HOOTMAN: Okay.

MR. SACHS: And I'm not -- I don't think --

MR. deLASKI: There's two different things here: One is what we need for our negotiation; another is what they need to do for their analysis, for their rule. But he needs a number for his rule, I don't feel we need a number to negotiate today for tomorrow.

MR. RAMIREZ: That's kind of what I was getting

at, right. I think the parties understand that there is that correlation there. And I think with that information, that's probably enough for you all to continue your negotiations.

MR. deLASKI: And I think Harvey put it very well, I don't want to expand on it, you know. We don't want to sit here and debate the impact of the standard on how many jobs are in the U.S. right. Because we could just go around and around and around and around on that issue, and I just don't think it's going to be a good use of our time, right.

MR. CYMBALSKY: This is John from DOE. So absent from this conversation, I think Harvey was getting at it a little bit, but I don't think actually hit the nerve, is that there is the indirect job benefit to the macro-economy in the U.S. and with the NPBs that we're seeing here in the 50 billion, 70 billion range. That money goes somewhere else, and guess where it goes? It goes for people to buy new stuff.

It may not be a CUAC, but there's a lot more disposable income floating around for people to purchase other things that the U.S. economy provides in part. So the domestic production of this product is one aspect of the jobs, but there's also the indirect aspect.

Not to mitigate the direct employment impacts

that are very important, but it's not the whole picture, and I just wanted to make that point.

MR. SACHS: John --

MS. HOOTMAN: And John, those are also in the MIA; right? Or where do they fall?

MR. CYMBALSKY: So it's a separate analysis, but we do -- we do provide those numbers in the NOPR.

MR. SACHS: John, this is Harvey. And I -- I would almost respectfully suggest you rewind that tape because it leads to a lot of other questions like what fractions of those purchases that would have been made but/for the expenditures on CUAC would be of imported goods, domestic goods, domestic services. And it's just -- I --

MR. RAMIREZ: Let me stop you from getting into the weeds here, not to get too far into the weeds.

MR. CYMBALSKY: I didn't want to get -- I just wanted to make a 30,000-foot remark about it.

MR. RAMIREZ: And I'm pulling you back out. All right?

So where do we go from here as far as trying to take a hard look at what are the remaining issues and see what adjustments to make that we can to find some common ground?

FEMALE SPEAKER: Are you ready?

MR. RAMIREZ: So what do you all think of having that initial recommendation of having the parties caucus and having the facilitators/mediators joining each of the groups and having a little discussion on how we move forward?

(Laughter.) That was the fa-mediation part, facilitating and mediating; right?

MR. WINNINGHAM: This is Dave from Allied. I think from the manufacturers perspective, we need to caucus independently first before there -- now, I'm not ruling that out for later, but we need to -- to caucus independently first.

MR. RAMIREZ: Not ready for the whip quite yet? Okay. All right, Dan, I'll put it away.

So how much time do you all need, then? Where do we go from here?

MR. CYMBALSKY: 1:00 o'clock, I'd say.

MS. HOFFMAN: So take your lunch.

MR. deLASKI: Take lunch, caucus time, come back at 1:00.

MR. CYMBALSKY: Don't eat any spicy food or anything that might upset your stomach, maybe --

MR. RAMIREZ: Get some feel-good food, some turkey and gravy, some comfort food.

MS. HOFFMAN: The management group is going to

caucus.

MR. RAMIREZ: Both sides, yeah, both sides will be caucusing. So 1:00 o'clock and then we'll come back and see how you want to proceed.

MS. HOFFMAN: So we'll see everybody here at 1:00. We're off the record now.

(Lunch recess was taken.)

MR. RAMIREZ: All right. We're going to go ahead and get started back up. And I guess for the record, Jill Hootman is with us now and would you give --

MS. ANDERSON: Mary Anderson from the California IOUs.

MR. RAMIREZ: Great. Thank you.

All right, so we're going to start off, it looks like we have another idea. I assume it's a package idea to try and maybe get something done here. And Andrew, I'll let you --

MR. deLASKI: Thanks.

MR. RAMIREZ: -- explain what we're looking at.

MR. deLASKI: So I'll come to the front if I can.

MR. RAMIREZ: Yeah.

MR. deLASKI: We thought in the interest of -- can you hand me the mic? Is this mic live?

So in the interest of keeping things moving here

and trying to advance the negotiations, because I think as we all said this morning there's a lot of interest in coming to an agreement that results in better outcomes for all parties and on all metrics and on all measures.

We talked about some of the different measures by which we look at the costs and benefits of a new standard.

We went back and did some thinking and we hear you on -- with respect to TSL-4. Okay? And I think this slide kind of, these numbers everyone's unfamiliar with. There's an obvious inflection point here at 3.5. So to go from 3.5 to 4, big jump. Karen pointed out last time, big jump in energy efficiency from 3.5 to 4.

But with that, they jump and efficiency also comes a big jump in manufacturing impacts. And this is shown in the slide we were looking at this morning, slide 77 from last time where we also see an inflection point in manufacturer impacts in either scenario with them becoming more -- becoming larger going from TSL-3.5 to TSL-4.

So we are prepared to move off of TSL-4 and to come down to a lower level. Okay? So we -- we see that inflection point often when we're looking at new and improved standard, we're looking at cost of energy curve and that inflection point, the point below that point

where the inflection happens is a logical place for a standard to land.

So let me just run through the whole package, our revised offer. And I want to emphasize, because we've heard the arguments, you know, we had these last time about looking for a way that results in a win-win for energy savings and also for a better result for manufacturers, and would be the case compared to the NOPR. One that reduces the cost, we at some point had a discussion before lunch, and we feel that we made a number of concessions during the past -- during the course of these talks that will work to reduce the cost for manufacturers to comply with new standards.

So so far to date, those concessions include tentatively agreeing to an 81 percent standard for new furnished standards instead of the 82 percent that was initially proposed by DOE. Agreeing to delay that date until the phase 2 date for air conditioners. So in our view, this is a significant gain for industry in terms of being able to align those effective dates and go with a lower efficiency then would have been the case in the NOPR.

Secondly, we've agreed to your tier 1, to do an initial standard based on the ASHRAE levels, the copies of the ASHRAE levels for which the investments are not

complete, but largely on track. This is a -- I think a significant concession to look at. Whereas, the proposed rule had a level in 2019 that would have required significant investments by industry to go with that 2018 date for an initial tier that is -- that was your offer.

We've also agreed to a tier 2 that would be later at a time that will hopefully give you the flexibility to do investments for refrigerants at the same time you that you make your investments for improved efficiency.

So we feel like there's been a number of concessions or agreements that are tentatively in place to -- to mitigate the impacts on manufacturers so that when we're getting these large national benefits for economic savings, for energy savings, for environmental emission reductions that they're being accomplished in a way that softens the impact on industry. And I would say that that's why we did these negotiations. That's why we're here. That's why we agreed to come to this process.

Ideally, we want to see an outcome that increases energy savings compared to the NOPR. You know, we didn't really embark on this process at the beginning with the notion that, you know, get to the same exact result as you would have got. The idea I came into this

with was, okay. Well, if we can all get around a table, maybe we all could be better off. Industry has lower costs, but we get better energy savings for the country than would otherwise have been the case.

So that's what I was looking for coming into this. To get a better result that would have been the case for energy savings than would have been with the NOPR. I think we're -- we're adjusting our sights a bit. Okay? And I'm adjusting our sights to a different framing, which -- which focuses on more on how do we get to an outcome that certainly is no worse than the NOPR.

In other words, we want to get savings that get us at least to where we would have been with the proposed rule. So conceptually, what we're saying is that it's still a big win for the environment, it's still a big win for energy savings and for economic benefits, but let's get that win in a way that is more -- that reduces the burden or smooths the path for industry to be able to comply.

So that's a significant in my view, and our view as a coalition, it's quite a significant shift to say in terms of this being a win-win in a sense that we're all better off is that we're at least as good off on energy savings in the environment and economic benefits as we would have been under the NOPR in the revised analysis,

of course. So that -- with that, I want to make two other points before I lay out the proposal.

One is that the numbers that we're dealing with in this proposed rule are huge in terms of energy savings. And we're focused not -- we are focused on the absolute value of those numbers. So in other words, a 10 percent difference on 15 quads is a quad and a half. A 5 percent difference is .75 quads. I mean, these -- there are many DOE rules and many of us have sat in rooms together arguing over much smaller numbers.

So these are differences that matter to us. A 5 percent difference, a 10 percent difference is what this discussion is about. Okay? So we're not going to sort of look at the levels that we're going to propose and say, okay. The percentage differences drive large absolute value in terms of energy savings, economic benefits, and emission reductions.

So our revised proposal would be furnaces, as before, taking effect in the year 2022 at 81 percent on EER, or as has been discussed and as I think we got a tentative consensus on that instead of asking it to be a standard value, instead it would be AHRI would commit to continue publishing certified EER values in its directory and work to make those values accessible in a way that are -- is easily useable by utilities, I guess, is the

way to put it for their incentive programs.

With respect to the test method, we've agreed previously that we would not look for a change in the test method for this docket. But I think as our discussion earlier this morning showed that we continue to have concerns about the test method underrepresenting fan energy use and perhaps other features.

So it's our -- our -- we would suggest that the third point -- the third point in our proposal is that -- that there should be a revision to the IEER test method, and it would be used with the next iteration of the standard, but it should be done relatively soon.

And the reason to do it relatively soon is so that manufacturers know, well, what's it going to be next time. Because we have been in -- we've heard you loud and clear, you don't want to see the test method revision come late, because then it just -- you want to know what the rules of the road are going to be. And also, I think by getting it done relatively soon, it allows manufacturers to take that revised test method into consideration as they do the redesign for the phase 2 standard.

Okay. They know what it is, as opposed to you don't know what it's going to be until 2025, that's way too late. So we would suggest that under the terms

sheet, DOE should be required to initiate a rule-making to revise IEER by January 1st of next year and to complete it by January 1st of 2018. Let's get it done relatively quickly -- very quickly. Again, those dates aren't written in stone, but it gives you a sense of our sense that we should do it sooner rather than later. Okay?

On levels, as before, we accept your level 1, your phase 1 level. And for phase 2, we will come to the 3.5. Okay? 3.5 for small and medium, and 3 for large. 3 -- there is no 3.5 for large, same. The 3.5 for small and medium and 3 for very large. We had LBNL run the numbers.

MR. CYMBALSKY: What year was that? I'm sorry.

MR. deLASKI: 2022. So no movement of dates, but the same date as proposed as last time. We asked Greg to run the numbers for us. The results of that is on my other pad of paper and Greg, maybe you can just make sure I get it -- make sure I read it off right compared to what you gave me, please.

15.4 quads of net energy savings, $51.7 billion net present value savings, 3 percent discount rate, $15.7 billion at 7 percent discount rate. The NOPR was 16.3 quads, so this is less savings than the NOPR per the DOE analysis.

Now, this goes to the issue that we discussed a little bit this morning, which is that we think that this level, this is that level 3.5, we think that the analysis understates the savings, the 3.5. And this is that little blip that we've discussed that at 3.5, and I'll just tell you another scenario that Greg ran for us.

Another scenario that Greg ran for us is, in the same year is go to a lower standard for the large -- for the small. Go to TSL-3.0 for the small, and savings actually go up, right. Again, it's an artifact of the analysis.

So we think that if you do 3.5 in the year 2022, that actually will, even though the analysis kicks out savings that are lower than the NOPR and practices likely to deliver savings that are quite similar to the NOPR. Again, that's for objective. How do we get to an outcome that gives -- we started this with 2019 as a date on the NOPR. We've had to put in a lot of flexibility by moving things out later. But how do we -- if we're going to go later, then we have to go up a tick in efficiency to get to the same savings for the -- for the -- for these two classes. Compare it to the NOPRs here, up a tick in efficiency for the small and the large. It would be very much the same and we would get to that combined with tier 1 would get us to an outcome in terms of quads that are

quite similar to the NOPR.

You want to ask something, Marshall? And I refer to my team in terms of if they want to embellish, too.

MR. HUNT: Hi, this is Marshall Hunt, California IOUs. As everyone knows, I'm very interested in EER and I appreciate working with Karim and others at AHRI about continuing to publish.

One -- another reason that I see for our counteroffer at 3.5 is that when I look at the few examples that we've given, that gives us a much better chance of not backsliding on EER. And since we can't have two variables as we get to the 3.5, at least as I see things, it's much more likely that we'll have a decent EER. Thank you.

MR. deLASKI: Harvey or Louis or Meg -- Meg's on the phone -- you all want to add anything in before we take any questions?

MR. SACHS: This is Harvey, and I look forward to hearing questions which might drive to a level of detail I'm more comfortable with.

MR. deLASKI: Can I answer any questions about the proposal?

MR. McCABE: Michael McCabe. Andrew, could you explain your position on the test procedure? It sounded

to me like you were saying that get the test -- an IEER revised by January of '18, and that the tier 3 value the tier 3.5 value would be the new test procedure?

MR. deLASKI: That would be nice.

MR. McCABE: But that's not what you were saying?

MR. deLASKI: No, not what I meant to say. So the intent of -- you know, as I -- so our intent is that the test method, the values that we're negotiating in this standard proceeding are using the current test method.

MR. WINNINGHAM: Could you go over those dates again, Andrew, in regard to the test procedure?

MR. deLASKI: So our straw man, again, these are not dates that were -- we're rooted to, but to get started by next January and to complete it within two years, maybe a little more time is needed.

You know, the thought here is that I kind of -- what I would like is that we end up with a world in which you know what the new -- what the next iteration top-down is going to be as soon as it's practical.

MR. WINNINGHAM: I think conceptually, I think that's got some merit. But from a DOE perspective, I think that has some drawbacks because once it becomes a federally adopted test procedure, it goes into effect 180

days after it's adopted.

MR. deLASKI: Well, let me tell you about my experience, and then John or Eric can comment. So we've been through a similar experience with other products, dryers is an example, clothes washers is an example from the mid-nineties where DOE adopts it, keeps -- has two -- so right now in dryers you have D-2, you have D-1 and D-2, and they're both live.

MR. WINNINGHAM: Okay. In other discussions that hasn't been presented, but that's okay.

MR. deLASKI: And then the one -- and then the D-2 becomes -- or the new test method becomes -- they're both in effect, but you certify using one or the other.

John or Ashley, you want to? They're just nodding their head basically, so -- and in part, you know, I think this is useful in terms of, again, just -- so you know the rules of the road, the earlier the better.

MR. WHITWELL: Andrew, can you hear me? This is Bob.

MR. RAMIREZ: Yeah, we can hear you.

MR. WHITWELL: Okay. So --

MR. deLASKI: We can't hear you now, Bob, if you were still talking --

FEMALE SPEAKER: Is he muted?

MR. RAMIREZ: So John, you had something?

MR. CYMBALSKY: No, I was just going to say, his plane had mechanical failure, now it's spreading like a virus to his telecommunications device. All right, Bob, we'll try to get you as soon as we can.

MR. deLASKI: I'm going to sit down.

MR. RAMIREZ: What other discussion or questions around this?

MR. WINNINGHAM: This is Dave with Allied. I guess, first of all, Andrew, thank you across the board for bringing that forward. You know, we've had some discussions and there are significant issues here that we need to discuss as, you know, we represent, you know, our organizations. But there are organizations here outside that are AHRI members who have -- who are frankly not so happy with what we brought to the table last time. So we need to make sure that our entire constituency here that we're trying to represent is onboard with whatever that we are moving towards.

We are here to try to reach a consensus. And we firmly believe that, you know, whatever the outcome of the process we're trying to -- to make that happen. But I think that -- that we probably need to discuss this internally with the manufacturers before we can reasonably respond.

Rusty, I don't know if you have any further thoughts around that.

MR. THARP: You like putting me on the spot, don't you, Dave?

MR. WINNINGHAM: Yes, sir.

MR. THARP: I will echo the appreciation to the advocate community for the offer. And I do think I see -- starting to see the light at the end of the tunnel, and just leave it that -- I think I need to go back and caucus.

MR. RAMIREZ: How much time were you thinking on that? How much time do you think you would need to meet with your group?

When you say "a long time," are we talking about coming back in the morning or are you talking about just an extended break?

MR. deLASKI: Extend break for Karen. Extended break.

MALE SPEAKER: Karen, last time we got you a bottle of water lasting (simultaneous speaking).

MS. MEYERS: I had a lot of businesspeople who were not happy. That's all I'm going to say. I appreciate the offer, but I'm trying the best I can to (inaudible). I can just tell you --

MR. ZENDAH: This is Sami Zendah with Emerson.

So I work with a lot of OEMs, that's what I've been doing the last few weeks, the ones that are not in this room. And I present this stuff to them as a, you know, a discussion point. A lot of them are struggling, I mean literally struggling. They're not here, I don't know why they're not. You can argue, you know, they're not participating. But all I know is they -- they're right now worrying about level 1 and how to get to it by '18, let alone these higher levels.

So I just thought -- let this group know, I mean, there's -- these are small to medium size type OEMs, they don't have equipment. I can show you this work I've done on the side. I mean, it's not -- I don't think it should be shared for the whole room because these guys, they compete against each other. And like you said several times, I mean -- I think we're picking on OEM designs with these analysis that the numbers are all over the place, and I can see that because I know what's in every single design.

So anyway, that's important. You've got to take that into account. These guys, yes, they have equipment, and the EL-3, 4, and so forth. Some don't even have EL-1. So I just want to -- I want you to know that.

MR. SACHS: Sami, this is Harvey. And one of the things I've been thinking a lot about the last couple

of days is that each of us is here not for his own organization, but for the -- his industry as it were. And so I appreciate your remarks and I -- I certainly took Rusty's and Dave's in exactly the same sense of needing to meet the needs of all the manufacturers. And I'm sure you'll understand that we have not had complete, instant unanimity on our side of the table, either.

So we're all trying to be representative and we'll keep on doing it. Now, I would like to just offer without having to talk to our caucus that if it is helpful to explore any of these details, get clarification or anything else before we break for caucus, I'm volunteering Andrew.

MR. deLASKI: Sure. I guess I was making -- again, I would suggest that moving to a caucus and give you guys a chance to talk since this is a new proposal.

We're trying to advance things here, and I would really urge you to take to heart my framing. Okay? Which is we're trying to, you know, get to the savings equal to the NOPR. And understand our position that I asked you to take a look -- our position is that, you know, we didn't come into this to take a haircut on national energy savings for the nation.

And I know in this -- this is going to have impacts. We're trying to come to an approach that

reduces this impact, but I know it doesn't eliminate them. And it's not -- and I think by coming in with these, you have to consider all these stay cold whether here or not here, have to consider what's going to happen in the alternative; right?

So we're trying to introduce as much flexibility as we can. And Karen and I, you know, we've been through a lot of dockets. And you know the numbers here are really big, and they're going to drive decision making and are driving our calculus is in terms of what we -- so that's where I come back to this, you know, 10 percent on this one's big.

And I understand that, you know, you have your work cut out for you as you just said. You know, we all have to consider what's going to happen in the alternative. So we're trying to come up with some pathways that -- that hopefully can work. So think about the framing of, is there -- you know, if you have other thoughts on how to get to that result that work better, we're all ears. We're all ears. Okay? So this is --

MR. ZENDAH: This is Sami again. I agree with you, it's just a balance between all of these things. I just -- I can tell you've been doing this for years. This is my first one, so I'm learning -- when I see the market to be shrunk by 25 percent, now I'm like, what's

going to happen to us? I mean, not just these OEMs; right? And our suppliers, so this is bigger than -- we haven't looked at how many other people are going to lose their jobs beyond what --

MR. deLASKI: I really would just assume not -- I mean, I don't believe those numbers. Do we have to go through it again? I don't think it's a useful use of our time at this point to debate the things that we've already debated over the past three or four meetings.

MR. ZENDAH: It is still a valid point, though. It is valid, but that's it. I'll leave it at that.

MS. HOOTMAN: Well, wait a minute, Andrew, though.

MR. deLASKI: There's a range of projected impacts. And I accept that there's an -- I accept there's an impact, it's a range. You know, I don't know the numbers. If you accept, there are two incident scenarios, right, and we've been focusing on the worst case scenario.

MS. HOOTMAN: I don't know that I would say it's worst case. I think that they're on the low side. I think we've been trying to say that they're on the low side and for the sake of negotiation, we're not going to necessarily argue those, but they're on the low side when it comes to the MIA.

Sorry, Jill Hootman at Trane. And the fact is, I'm on public record here, and if we were to accept that I'm going to go back to my company and accept the fact that it's going to contract by 30 percent? I'm fired. I'm sorry, I just can't -- I cannot justify that to a CEO, say that I signed up for that.

MR. WINNINGHAM: Andrew, you know, you said -- this is Dave at Allied. It's a worst case situation, but when we have a 25, 30, to 40 percent contraction and we're going to maintain operating profit, that doesn't work. That doesn't work in the business world.

You know, and just as you said, you're not here to take a haircut compared to the DOE NOPR. The comments that we've filed would suggest that we weren't even close in the DOE NOPR. So we're coming at it from two completely different perspectives. We're not coming here to take a haircut because we don't think TSL-3 was justified.

MR. deLASKI: Yeah, I hear you. And I'm telling you, at this point we've given our furnace dates, we've given on air conditioner dates, we've given on furnace stringency. We've taken into consideration your desire to align dates with a likely refrigerant change. Help me out here, you know?

MR. WINNINGHAM: We've probably -- in regard to

the energy use in the analysis, we have made a concession to include ventilation air, which is driving everything that you're talking about. If we were to go back and drive this to the ventilation air as it was done in the original NOPR, these numbers would be dramatically smaller than what you see now and --

MR. deLASKI: Would it be more realistic, Dave?

MR. WINNINGHAM: I wouldn't -- I'm not arguing that point.

MR. deLASKI: What point is it, then? We want to realize what goes on in the real world, isn't that what's important for users?

MS. MEYERS: How many by you giving on by energy savings, how many jobs does that cost your company? Because that's where we're at, Andrew.

We cannot problegate something that's going to drop our industry. You don't lose a job. I am faced with -- I mean, we have one commercial manufacturing facility, that's it. And if I agree to a standard that's going to drop the industry by that much, you can imagine what that does to the jobs in that facility and to the entire facility itself.

So we -- we are -- I work with you a lot, Andrew, and I am really trying to get something, but we've got some work still to do, and I just hope everyone

is willing to continue to put in that effort. Because I've got e-mails from my COO, he's got e-mails from his COO, I know Rusty said he has e-mails from his business leaders. And you have to realize that in this room, it goes beyond the scope of this negotiation.

We've got -- we've got things happening on furnaces, we've got things happenings on water heaters, we've got things happening on commercial refrigeration, we have stuff happening on residential air conditioner, and that's all these same companies.

So that IMPV is limited, it's much worse than that when you look at it in that broad perspective. My company alone has like 20 rule-makings that DOE's doing right now. And, you know, it gets to the point where everyone -- you know, they say, "Enough is enough." You know, we'll just, you know, this is -- and that's where a lot of us are at. We're not going to quit working on this, I want you to understand that. Work with you a long time, and sometimes it takes us to the 11th hour.

But I've got to tell you, we're not there yet. And I just hope you guys are hearing that message. We need to go caucus. We'll come back, but I can tell you right now, I can't agree to this. But I want to keep working with you, and hopefully you will agree to do the same. That's the only thing I -- I'm trying to get

something, but I can't do this.

MR. deLASKI: I appreciate that. And I guess, you know, we've -- this was not -- I did not put this out as a take it or leave it.

MS. MEYERS: Okay. Good.

MR. deLASKI: This is intended to advance the discussion, not end it.

MS. MEYERS: Let's go caucus.

MR. deLASKI: If you've got another way to get there, we're all ears.

MS. MEYERS: It may not be getting the same amount of quads.

MR. RAMIREZ: How much time do you need?

MS. MEYERS: Plan on an hour.

MR. RAMIREZ: We'll check in in an hour. Thanks.

MR. SACHS: This is Harvey, and -- I think it's worth a little bit of summary about a couple of things that have been said.

One of them is that Andrew did use the term "straw man" at, and the second is that he did focus on quads. And we recognize that quads is one of the two linked critical metrics, the other is IMPB.

And you and I have been through an awful lot together, too. I used to have hair, and -- and we're

staying. Okay?

MR. RAMIREZ: All right. Thank you.

MS. HOFFMAN: Thank you.

(Recess taken.)

MR. RAMIREZ: All right. Who wants to lead off and fill us in on some of the conversations from caucus?

MS. MEYERS: Okay. So do you want me to do it? I had a conference call and -- (inaudible).

So I think actually, Javier, that we've come up with a couple scenarios, we've asked for numbers to be run, it's going to take Navigant until the morning to get us that information.

So we would request that, you know, if we can get the information tonight or first thing in the morning, we'll then need to caucus again. And so we would ask that we just, you know, adjourn now and then perhaps get the full group back together at 9:00 o'clock in the morning.

I need to know the results of those, speaking for my company, I need to know the results of the analysis so I can make some calls to see if there's any room. And I think some of the other people indicated the same thing. So that's what we would like if everyone is willing.

MR. deLASKI: So Navigant runs the MIA. So

that -- so the MIA numbers you've asked them to run?

MALE SPEAKER: We've asked them for several different scenarios to look at the MIA, as well as the quads, as well as cost.

MR. deLASKI: I'm just asking because Greg turned around the quad numbers for us very quick.

MALE SPEAKER: We have quad numbers for the scenarios, we're waiting for the MIA numbers. That's the primary thing that we're waiting on now.

MR. RAMIREZ: So let me ask Navigant: How much time would it take you -- when could you get that to them tonight -- if tonight, right? To see how much time they would have either tonight or tomorrow morning to work on this.

MR. RIVEST: So some of the scenarios --

MR. RAMIREZ: Oh, I'm sorry. We need a mic for you, Michael.

MR. RIVEST: Yes, I mean, some are straightforward and I'm sure they can, you know, we'll be able to send them maybe by 8:00 tonight.

The others we talked about involve looking at a markup scenario that's different, and that's going to require some thought. And I don't want to commit to a time on that one except the morning. But in terms of the levels and timing and all that, you know, they'll

certainly have them tonight. When you come back from dinner, you'll have them.

Which -- how do I e-mail? How do I e-mail these to everybody?

MR. THARP: I think it should just come to the industry.

MR. RAMIREZ: Yeah, that's -- that's where the -- I'll tell you what, why don't -- why don't -- why don't you all pick one person that --

MR. THARP: That's what I was going to suggest.

MR. RAMIREZ: -- he can e-mail it to and you can forward it to whoever you want from there. I just want to do it so that it's secure. I don't want it going to anybody it shouldn't be going to.

MR. THARP: Send it to me and I'll forward it to everybody. He's got my e-mail right?

MR. RIVEST: We got it, thanks.

MR. WHITWELL: Yeah. Hi, this is Bob Whitwell. So I didn't hear what Michael said he was going to be able to send tonight and what would be later.

MR. RAMIREZ: So you want to --

MS. HOOTMAN: Bob, we'll let you know.

MR. deLASKI: We'll be in touch, Bob.

MR. WHITWELL: You'll e-mail me?

MS. HOOTMAN: Yes, Bob.

MR. deLASKI: Are you coming down tomorrow, Bob?

MS. HOOTMAN: No, he's coming down right now.

MR. WHITWELL: I will be there. I'll be leaving here in an hour.

MS. HOOTMAN: New York, Syracuse.

MR. RAMIREZ: All right. Thanks, Bob.

So logistically, part of the reason that I'm asking the question is that I don't want to -- I know that sometimes it's frustrating when folks come at a certain time thinking that they're going to be meeting and then they have to wait some more.

So I just want to be respectful to some of the other folks that if you're not going to get the information until 8:00 o'clock and you know you're going to need more than an hour to look at it, do we meet at 9:00 or do we meet at 9:30 or what's the realistic start time?

MR. THARP: I think it should be probably -- let's count on an hour and a half after we receive the information that we asked.

MR. RAMIREZ: Michael, sorry, can I nail you down with a little bit tighter timeline for the more complicated information? You said morning, but --

MR. CYMBALSKY: Why don't we just -- he said he didn't commit to any time, actually.

MR. RAMIREZ: Oh, okay. So they would get it before like 7:00 in the morning or something like that? Okay. All right.

MR. THARP: Well, if we get it by 7:00 in the morning, manufacturers can meet 7:30 in the morning, that will give us an hour and a half. So let's plan on starting at 9:00, then. Speaking out loud -- thinking out loud.

So as of now, we'll plan on meeting at 7:30 in the morning and then coming here at 9:00. Is that enough? Because we've got to allow a half-hour to get through right?

MALE SPEAKER: Because of what's happening tomorrow morning down in the lobby.

MR. THARP: Let's make it 9:30, then.

MS. HOOTMAN: Yeah.

MR. THARP: Let's make it 9:30. We'll still meet at 7:30 -- plan on meeting at this point, 7:30 in the morning.

MR. SACHS: It's your job, whether you want to think about trying to get into this room early or come as a second phase so you have a little more certainty.

MR. RAMIREZ: I'm sorry, Harvey --

MS. HOOTMAN: We eat over food and coffee.

MR. CYMBALSKY: They pretty much meet at the

same table.

MR. RAMIREZ: So get it miked up?

MS. HOOTMAN: Thanks, Harvey. That we like food and coffee.

MR. CYMBALSKY: There's a Starbucks right nearby.

MS. HOFFMAN: So John, were you going to say anything?

MR. RAMIREZ: All right. So then everyone okay with adjourning then and we'll be back at 9:00 o'clock in the morning?

MS. HOFFMAN: 9:30.

MR. RAMIREZ: I'm sorry, 9:30 in the morning.

MS. HOFFMAN: 9:30.

MR. RAMIREZ: 9:30.

MS. HOFFMAN: By then, we might be able to get in the regular entrance. But if not, you know where it is, the side entrance.

MR. CYMBALSKY: So it's really not a big -- I think it's a bigger deal than people are making of it. I mean, the lobby's not a big lobby to begin with. One of the doors will be closed, but the security is not going to be any different in terms of what you go through normally. There will be just a bunch of people having some ceremony, but that shouldn't effect your entrance in

checking your computer and all that kind of stuff. Brenda?

MR. RAMIREZ: We'll let her know. We'll let her know. We'll let her know that we're going to be starting at 9:30 instead. Thank you.

MS. HOFFMAN: Thank you, Sami. Thank you because we don't want to get her mad.

MR. RAMIREZ: It's not wise to upset Brenda.

MS. HOFFMAN: I guess we'll officially adjourn for now and we'll see you all officially back here at 9:30 tomorrow morning. Have a good evening, a productive one. Thank you.

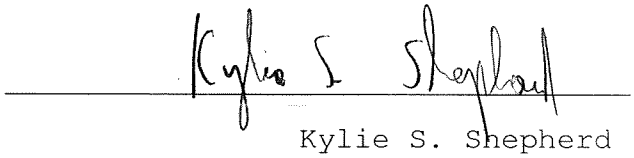
(End of audio.)

CERTIFICATE OF REPORTER

I, Kylie S. Shepherd, Certified Shorthand Reporter, CERTIFY I was authorized to transcribe the proceedings, and the foregoing transcript is a true and accurate record.

I FURTHER CERTIFY that I am not a relative, employee, attorney, or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

Dated this 11th day of June, 2015.



Kylie S. Shepherd