

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

- 1 Charles McCrudden
- 2 Karen Meyers
- 3 Nicholas Mislak
- 4 Raquel Nieto
- 5 Javier Ramirez
- 6 David D. Ransom
- 7 Michael Rivest
- 8 Greg Rosenquist
- 9 Harvey Sachs, Ph.D.
- 10 Amy Shepherd
- 11 Michael Shows - via webinar
- 12 Wade Smith - via webinar
- 13 Louis Starr
- 14 Eric Stas
- 15 Rusty Tharp
- 16 Meg Waltner - via webinar
- 17 Detlef Westphalen
- 18 Robert Whitwell - via webinar
- 19 Linda Wilson - via webinar
- 20 Dave Winningham
- 21 Mike Wolf - via webinar
- 22 Xing Xu - via webinar
- 23 Sami Zendah
- 24
- 25 AUDIO TRANSCRIBED BY KYLIE S. SHEPHERD

## 1 P R O C E E D I N G S

2 MR. RAMIREZ: All right. Welcome, everyone.

3 Let's go ahead and get started. And the let's get  
4 started with introductions, and then we'll go through and  
5 see who's online.

6 Javier Ramirez with Federal Mediation.

7 MR. HERMOSILLO: Isael Herмосillo with Federal  
8 Mediation.

9 MR. MISLAK: Nick Mislak, AHRI.

10 MR. THARP: Rusty Tharp, Goodman.

11 MR. SACHS: Harvey Sachs, ACEEE.

12 MS. MEYERS: Karen Meyers, Rheem.

13 MR. WINNINGHAM: Dave Winningham, Allied Air.

14 MR. STARR: Louis Starr, Northwest Energy  
15 Efficiency Alliance.16 MR. HUNT: Marshall Hunt, PG&E and the  
17 California IOUs.18 MR. deLASKI: Andrew deLaski, Appliance  
19 Standards Awareness Project.20 MR. McCRUDDEN: Charlie McCrudden, Air  
21 Conditioning Contractors of America.

22 MR. ZENDAH: Sami Zendah with Emerson.

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

25 MR. CYMBALSKY: John Cymbalsky, DOE Appliance

1 Standards.

2 MR. ROSENQUIST: Greg Rosenquist, LBNL.

3 MR. RIVEST: Mike Rivest, Navigant.

4 MS. NETO: Raquel Neto, Navigant.

5 MR. LAU: Christopher Lau, Navigant.

6 MR. WESTPHALEN: Detlef Westphalen, Navigant.

7 MR. AMRANE: Karim Amrane, AHRI.

8 MR. McCABE: Michael McCabe, consultant to

9 Trane.

10 MR. HURST: John Hurst with Lennox.

11 MS. SHEPHERD: Amy Shepherd, AHRI.

12 MR. RANSOM: Dave Ransom, McDermott, Will &

13 Emery, we represent Goodman.

14 MR. HURST: John Hurst with Lennox.

15 MR. BATTAGLIA: James Battaglia from Navigant.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25 So that has since been corrected, and that

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

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

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

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

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



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

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

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

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

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

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

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

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

7           MR. THARP: Rusty Tharp with Goodman. It was  
8 2.5 for this small, large, and 2.0 for the very large.

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

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

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

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

20           So -- and again, so I have a spreadsheet tool  
21 that -- where I can alter the first compliance date to  
22 either 2018 or 2019, and alter whatever more stringent  
23 level after that, using compliance years between 2011 and  
24 2024 -- I mean 2021 and 2024.

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

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

5 From what I'm understanding, if Greg changes the  
6 12.6, sounds like it's going to go down a tick based  
7 on --

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

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

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

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

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

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

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

6 MR. SACHS: Thank you.

7 MR. deLASKI: Right. So --

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

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

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

21 MR. deLASKI: Three.

22 MR. ROSENQUIST: It's three?

23 MR. deLASKI: Three.

24 MR. ROSENQUIST: Okay. Three years.

25 MR. deLASKI: This is Andrew. Just a couple

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

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

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

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

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

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

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

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

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

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

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

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

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

19 MR. HUNT: Excuse me, Marshall Hunt from PG&E.  
20 Greg, I do have one question I'd like you to comment on.  
21 On the slide 8, although it's taken out in this copy, I'm  
22 always noticing that the 3.5 -- for the small equipment,  
23 3 is 5.8, 3.5 is 5.4, and 4 is 6. And I never really  
24 believed that. Do you have any explanation how if I  
25 didn't believe it, how I might go around figuring out

1 why?

2 MR. ROSENQUIST: Can you repeat your question?

3 I was talking with Mike.

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

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

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

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

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

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

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

3 MR. HUNT: Thanks.

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

9 MR. deLASKI: Yeah, my recollection -- this is  
10 Andrew. My recollection of some of the earlier  
11 interaction, and I'm not sure whether Jill's on the phone  
12 or not, but we -- there's a point of IEER difference  
13 between 3 and 3.5. It goes from 14.8 to 15.8, so it's a  
14 pretty good jump. It's a -- you know, an additional  
15 9 percent of IEER improvement.

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



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

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

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

15 MR. ROSENQUIST: Yeah, that's a good point,  
16 Louis. Although, you know, at TSL-3 I believe a fraction  
17 of the market estimated to the curb conversion is around  
18 the order of 65 to 70 percent. And then when you get to  
19 3.5, it's only marginally larger than that.

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

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

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

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

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

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

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

1 with a 623 watt indoor fan for the test condition at the  
2 full speed. EL-3.5 does have a point higher IEER at  
3 15.78, but the indoor power fan power at full speed is  
4 970.

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

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

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

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

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

19 MR. RAMIREZ: Yeah.

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

22 So it looks like the difference between EL-3 and  
23 3.5 for the use of curb adapters is 60 to 70 percent for  
24 the seven-and-a-half ton units. And then the other  
25 difference that I noted was that the EL-3 unit was a

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25 MR. THARP: Rusty Tharp with Goodman. As Dave



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

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

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

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

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

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

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

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

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

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

1 multiple areas.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 classes.

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

5 MR. RAMIREZ: Yeah.

6 MR. deLASKI: If not, the teams have come today  
7 with a revision to their proposal sort of in their  
8 pocket, because I don't have a revision in my pocket that  
9 I am prepared to share. I was hoping where we left last  
10 meeting, I thought was, you know, our request to you guys  
11 to think about, you know, where you can improve on level  
12 2 to bridge that difference. And you know, so obviously  
13 you came back with nothing to offer -- to open, but we  
14 knew this wasn't sort of a half-hour meeting.

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

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

25 And also, maybe we have to change our role a

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

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

11 As Andrew has stated, the delta is 6.1 quads;  
12 right? That's the difference between the 18.2 and the  
13 12.1 is 6.1. There's different ways of getting there,  
14 right, and that's that creativity part that, is there a  
15 way that we can play with dates, maybe the different size  
16 of the units, doing some tweaking here and there to find  
17 the number that both sides could hopefully live with.

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

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



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

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

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

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

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

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

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

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

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

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

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

1 the points that Dave brought up, yes.

2 MR. SACHS: Do you have --

3 MR. CYMBALSKY: We have slides.

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

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

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

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

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

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

21 MR. SACHS: Cars on the river?

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

24 How much do you need?

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

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

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

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

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

21 MALE SPEAKER: You can take it out.

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

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

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

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

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

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

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

25 Had a careful look at all matters of capital

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

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

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

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

1 previous numbers outside them.

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

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

11 MR. HUNT: In parenthesis?

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

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

17 MR. RIVEST: That's correct, yes.

18 MR. HUNT: Thank you.

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

22 MR. HUNT: What was the next slide?

23 MR. RIVEST: Sure.

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

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

3 MR. RIVEST: This is the higher impact.

4 MR. WHITWELL: Higher impact scenario, thanks.

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

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

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

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

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

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



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

3 MR. RIVEST: Right.

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

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

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

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

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

16 MR. RIVEST: You want to speculate?

17 MR. RAMIREZ: State your name for the record.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 4 or whatever is negated a little bit by the imposition  
2 of that first tier.

3 And so -- and really, what we're capturing in  
4 this modeling is strictly the time value of money. The  
5 fact that we're pushing out investments, say, at TSL-4 or  
6 3 or 2.5. And if we're moving them from 2019 to 2022 and  
7 2024, right now, all the model is doing is it's  
8 discounting those investments for several years more. So  
9 it's capturing time value of money differences, but what  
10 it's not doing is capturing any additional benefits from  
11 moving a standard date from 2019 to, say, 2024.

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

17 So right now, we have product conversion and  
18 capital conversion costs coming in for tier 1 at 2019 or  
19 2018. And then we have another series of product  
20 conversion, product and capital conversion costs coming  
21 in at 2022 or 2024. And we're treating them as additive.  
22 So there's no assumed synergies here because I hadn't  
23 noticed, you know, at this point I had no data to presume  
24 anything else. So it's a worst case.

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

1 modeled the gap years, that is say, for example, the year  
2 between 2019 and 2024 to show the benefits of those  
3 additional years. Now, whether we're talking about R&D  
4 or we're talking about additional capital, the company in  
5 our model is spending about 2 percent of revenue. So  
6 \$26, \$23 million a year on R&D during those five years  
7 and \$26 million a year in capital, just to replenish, you  
8 know, the product life cycles that are ending to  
9 replenish the tooling that's used.

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

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

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

25           MR. RIVEST: Sure.

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

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

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

13 MR. deLASKI: Okay.

14 MR. RIVEST: But what I heard last week was, the  
15 first -- what the first offer was a 2019 tier 1 with a  
16 2024 tier 2 at 2.5.

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

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

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

1           MR. RIVEST: Right. That's what I opened up  
2 with by saying that the cumulative impact of having to  
3 comply with an EL-1, a TSL-1 in '19 and then that 2.5 in  
4 '24 is actually worse.

5           MR. deLASKI: I see. In your model.

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

19 MR. SACHS: Rusty --

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

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

1 possible out of that mandatory revision.

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

7           MR. RAMIREZ: Let me get Karim.

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

10          MR. RIVEST: Yes, yes.

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

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

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

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

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

6 MR. RIVEST: No, we can't compare the industry's  
7 32 billion. And this is where we're modeling  
8 1.3 billion. So we're talking about a dollar per dollar.  
9 So for this industry we'd be talking of, if it's a dollar  
10 per dollar, it would be 1.3 billion for this industry  
11 alone if that ratios hold.

12 MR. SACHS: I'm sorry --

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

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

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

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

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

1 \$32 billion industry here, we're modeling a subset of  
2 that.

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

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

9 MR. SACHS: Maybe less than that.

10 MR. RIVEST: Yes.

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

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

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

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

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

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

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

25           MR. RIVEST: Okay. So let me make another

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

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

7 MS. MEYERS: Say that again?

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

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

14 MR. RIVEST: Okay. All right.

15 MR. THARP: Absolutely not. Next.

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

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

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

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

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

8 MR. THARP: Rusty Tharp with --

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

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

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

18 MR. RIVEST: I would reduce -- I would take half  
19 of the 26 million a year. Right now, in the model I'm  
20 projecting \$23 million a year on R&D in those years, '19  
21 through '24, for example. And I'm projecting 24 --  
22 \$26 million a year in those same years for new capital to  
23 replace capital that's being depreciated.

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

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

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

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

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

10 MR. RIVEST: No.

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

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

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

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



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

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

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

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

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

1 410-As we're using; is that not true?

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

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

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

14 MR. ZENDAH: Sure.

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

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

1 one, but we don't know that yet.

2 So there's several options, I mean, there's --  
3 again, refrigerants and oils and testing. So that's why  
4 I'm here. I'm trying to figure out where we're going in  
5 2024 and what doubles --

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

9 (Laughing.)

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

13 Now, Chris has some numbers as well that I  
14 believe that he's going to be presenting. But let's go  
15 ahead -- 10 minutes? So let's start back up here at  
16 11:00 o'clock, then. Thanks.

17 (Recess taken.)

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

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

23 MS. HOFFMAN: Nightmare.

24 MR. RAMIREZ: I was trying to find --

25 MS. HOFFMAN: Challenge.

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

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

12           And there's a little kiosk there when you come  
13 in, you'll see two young ladies sitting helping people  
14 with their passes. That's where Brenda's going to be at  
15 to help you. It's suggested that you come in between  
16 7:00 and 7:15 to avoid some of the crowds and some of  
17 what may be going on here tomorrow. It's a suggestion,  
18 so if --

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

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

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

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

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

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

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

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

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

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

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

21 (Simultaneous speaking.)

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

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

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

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

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

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

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

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

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

22 FEMALE SPEAKER: And Charlie was -- was your  
23 question when the meeting ends? And the meeting ends at  
24 4:00 tomorrow.

25 MR. McCRUDDEN: No, my question --

1 FEMALE SPEAKER: What, was it 3:00?

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

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

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

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

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

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

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

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

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

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

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

25           MR. RAMIREZ: All right. Thank you.



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

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

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

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

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

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

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

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

12 So if we take these figures and apply it to the  
13 shipment values, the MPC values, and the markups, what we  
14 get is, you know, roughly we have \$1.2 million revenue in  
15 the GRIM from 268,000 units per year. We take 8 percent  
16 of that it's about, \$96 million, and if we divide  
17 96 million by \$37.7 per year, we get about 2,500  
18 production workers for the industry.

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

1           So I think that may be accounting for some of  
2 the difference between the figure that folks have in  
3 their head which they haven't actually shared. And  
4 what's presented here, that 2.5, you know, 2,500  
5 production workers. I think it may be worthwhile if  
6 folks are uncomfortable with this 2,500 numbers talk  
7 about what may be driving some of that difference.

8 Because at that point, this is the data we have. And as  
9 far as we know, this is reflective of the industry now.  
10 We're only talking about 1.2 billion out of the  
11 \$31 billion group that is the next code. So maybe this  
12 is a more labor-intensive product line than the average.

13           MR. WINNINGHAM: This is Dave Winningham with  
14 Allied. First of all, going back to the NOPR, the NOPR  
15 estimated 1,085. And now we're kind of reestimating at  
16 2.5K. And I think we would agree with your assessment  
17 that we think that is still significantly low. I think  
18 the things that you alluded to are probably the fringe,  
19 it's not the core of what our direct production workers  
20 do.

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

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

1 24 -- I mean, how many hours --

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

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

6 MR. WINNINGHAM: I have one plant in Stuttgart,  
7 Arkansas, and they have some products that build below  
8 65K, but 80 percent of what they do is this stuff.

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

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

21 MS. HOOTMAN: Right.

22 MR. deLASKI: You're not counting --

23 MS. HOOTMAN: 760,000, right.

24 MR. deLASKI: Not counting above that?

25 MS. HOOTMAN: Right.

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

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

6           MR. deLASKI: Okay.

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

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

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

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

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

20          MR. LAU: Right, so --

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

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

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

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

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

10 MR. RIVEST: Bill, this is Mike Rivest. I've  
11 been doing these rooms for 20 years now, and it seems  
12 that whether I'm talking about transformers or AC  
13 equipment or white goods, direct labor is about 8 to  
14 9 percent of your sale -- your revenue.

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

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

18 MR. RIVEST: But that labor rate, maybe a year,  
19 36,000 high and that's -- you're dividing everything by  
20 that; right?

21 MS. HOOTMAN: Yeah.

22 MR. RIVEST: So it ain't pretty.

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

25 MR. RIVEST: Right.

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

2 MR. RIVEST: And that's about what it is, 8 to  
3 9 percent. Now, it is -- that wage is really big  
4 assumption and we don't -- we don't have it broken down  
5 if it's domestic.

6 MS. HOOTMAN: Pretty light.

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

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

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

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

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

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

1 certain number here in order to do that?

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

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

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

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

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



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

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

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

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

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

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

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

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

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

1 factors.

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

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

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

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

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

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

18 MS. HOOTMAN: Okay.

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

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

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

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

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

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

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

25 Not to mitigate the direct employment impacts

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

3 MR. SACHS: John --

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

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

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

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

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

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

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

25 FEMALE SPEAKER: Are you ready?

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

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

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

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

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

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

18           MS. HOFFMAN: So take your lunch.

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

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

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

25           MS. HOFFMAN: The management group is going to

1 caucus.

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

5 MS. HOFFMAN: So we'll see everybody here at  
6 1:00. We're off the record now.

7 (Lunch recess was taken.)

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

11 MS. ANDERSON: Mary Anderson from the California  
12 IOUs.

13 MR. RAMIREZ: Great. Thank you.

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

18 MR. deLASKI: Thanks.

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

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

22 MR. RAMIREZ: Yeah.

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

25 So in the interest of keeping things moving here

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

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

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

14 But with that, they jump and efficiency also  
15 comes a big jump in manufacturing impacts. And this is  
16 shown in the slide we were looking at this morning, slide  
17 77 from last time where we also see an inflection point  
18 in manufacturer impacts in either scenario with them  
19 becoming more -- becoming larger going from TSL-3.5 to  
20 TSL-4.

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 way to put it for their incentive programs.

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

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

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

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

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

8 On levels, as before, we accept your level 1,  
9 your phase 1 level. And for phase 2, we will come to the  
10 3.5. Okay? 3.5 for small and medium, and 3 for large.  
11 3 -- there is no 3.5 for large, same. The 3.5 for small  
12 and medium and 3 for very large. We had LBNL run the  
13 numbers.

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

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

21 15.4 quads of net energy savings, \$51.7 billion  
22 net present value savings, 3 percent discount rate, \$15.7  
23 billion at 7 percent discount rate. The NOPR was 16.3  
24 quads, so this is less savings than the NOPR per the DOE  
25 analysis.

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

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

12           So we think that if you do 3.5 in the year 2022,  
13 that actually will, even though the analysis kicks out  
14 savings that are lower than the NOPR and practices likely  
15 to deliver savings that are quite similar to the NOPR.  
16 Again, that's for objective. How do we get to an outcome  
17 that gives -- we started this with 2019 as a date on the  
18 NOPR. We've had to put in a lot of flexibility by moving  
19 things out later. But how do we -- if we're going to go  
20 later, then we have to go up a tick in efficiency to get  
21 to the same savings for the -- for the -- for these two  
22 classes. Compare it to the NOPRs here, up a tick in  
23 efficiency for the small and the large. It would be very  
24 much the same and we would get to that combined with tier  
25 1 would get us to an outcome in terms of quads that are

1 quite similar to the NOPR.

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

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

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

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

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

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

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



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

4 MR. deLASKI: That would be nice.

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

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

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

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

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

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

1 days after it's adopted.

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

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

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

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

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

21 MR. RAMIREZ: Yeah, we can hear you.

22 MR. WHITWELL: Okay. So --

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

25 FEMALE SPEAKER: Is he muted?

1 MR. RAMIREZ: So John, you had something?

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

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

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

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

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

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

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

5           MR. WINNINGHAM: Yes, sir.

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

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

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

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

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

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

25           MR. ZENDAH: This is Sami Zendah with Emerson.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 something, but I can't do this.

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

5 MS. MEYERS: Okay. Good.

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

8 MS. MEYERS: Let's go caucus.

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

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

13 MR. RAMIREZ: How much time do you need?

14 MS. MEYERS: Plan on an hour.

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

16 Thanks.

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

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

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

1 staying. Okay?

2 MR. RAMIREZ: All right. Thank you.

3 MS. HOFFMAN: Thank you.

4 (Recess taken.)

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

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

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

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

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

25 MR. deLASKI: So Navigant runs the MIA. So

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

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

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

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

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

15 MR. RIVEST: So some of the scenarios --

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

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

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

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

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

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

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

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

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

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

17 MR. RIVEST: We got it, thanks.

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

21 MR. RAMIREZ: So you want to --

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

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

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

25 MS. HOOTMAN: Yes, Bob.

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

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

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

5 MS. HOOTMAN: New York, Syracuse.

6 MR. RAMIREZ: All right. Thanks, Bob.

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

12 So I just want to be respectful to some of the  
13 other folks that if you're not going to get the  
14 information until 8:00 o'clock and you know you're going  
15 to need more than an hour to look at it, do we meet at  
16 9:00 or do we meet at 9:30 or what's the realistic start  
17 time?

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

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

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



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

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

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

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

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

16           MS. HOOTMAN: Yeah.

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

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

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

24           MS. HOOTMAN: We eat over food and coffee.

25           MR. CYMBALSKY: They pretty much meet at the

1 same table.

2 MR. RAMIREZ: So get it miked up?

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

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

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

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

12 MS. HOFFMAN: 9:30.

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

14 MS. HOFFMAN: 9:30.

15 MR. RAMIREZ: 9:30.

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

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

1 checking your computer and all that kind of stuff.

2 Brenda?

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

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

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

9 MS. HOFFMAN: I guess we'll officially adjourn  
10 for now and we'll see you all officially back here at  
11 9:30 tomorrow morning. Have a good evening, a productive  
12 one. Thank you.

13 (End of audio.)

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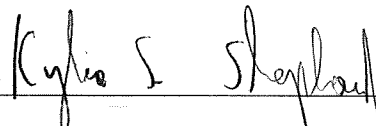
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CERTIFICATE OF REPORTER

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

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