UNITED STATES DEPARTMENT OF ENERGY

PUBLIC MEETING ON TEST PROCEDURES FOR GENERAL SERVICE FLUORESCENT LAMPS, INCANDESCENT REFLECTOR LAMPS, AND GENERAL SERVICE INCANDESCENT LAMPS

AND

ENERGY CONSERVATION STANDARDS FOR GENERAL SERVICE FLUORESCENT LAMPS AND INCANDESCENT REFLECTOR LAMPS

U.S. Department of Energy
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Participants

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A G E N D A

P R O C E E D I N G S

9:10 a.m.

Welcome

Linda Graves

MS. GRAVES: Good morning. Welcome to the Department of Energy. I'm Linda Graves, and I'm here with my team, and we are continuing the second day of the standards and test procedure lamps meeting.

With that, let's get started.

Opening Remarks

Doug Brookman

MR. BROOKMAN: Thank you. So we covered a lot of ground yesterday, and you all very easily and graciously worked within the norm boundaries that we've observed all these many years. I'm going to ask again, though, simply that you speak one at a time. Please say your name for the record. Listen as an ally. Keep the focus here. Turn off your cell phones. Put them on vibrate.

If you need to have much of a sidebar conversation, the acoustics in this room are unusually good compared to the Department of Energy, so we can hear you and it's disruptive. So please hold those down. I do hope this is an occasion when you get to serve your objectives today. That is, pursue the

matters that are important to you, raise the issues that are important to you, ask the questions that are important to you. That helps the Department as well.

So then, let's begin. Our first speaker following on from yesterday --

MR. LEWIS: I asked if she could just recap a little bit, just going back over the topic areas and giving people an opportunity to ask any questions they didn't get in yesterday.

MR. BROOKMAN: I think that's a real smart idea. I think all of you were here yesterday. Just so we're clear, we really hammered through about the last 10 slides. Mimi was very rushed in doing so. So let's back up to which slide, Mimi?

MS. GUPTA: So we're going to be on the National Impact Analysis part of the presentation, which is the one with lots of pictures, and Slide 22.

MR. BROOKMAN: So, on your agenda, this would be the middle of the last page in your agenda, the agenda for Tuesday, March 11th. So we'll proceed with the National Impact Analysis and then just keep right going straight on down as described in the agenda.

National Impact Analysis (Continued)

Mahima Gupta

(PowerPoint presentation.)

MS. GUPTA: Yesterday we got through the fluorescent national impacts, or shipment model in pretty good pace. So I figured I'd start asking you if you needed any clarification or have any questions or comments on the incandescent reflector shipment model. So, is that okay with anyone? No one has any comments on fluorescent, right?

(No response.)

MS. GUPTA: All right. So we kind of went through this yesterday, the basic methodology behind developing the base case shipment model for incandescent reflector lamps. So, are there any questions about this? Does anyone want me to go over this again?

(No response.)

MS. GUPTA: No? And the various assumptions that we included to develop the 2011 lamp stock. Those included emerging technology assumptions and growth assumptions. This was the resulting stock projection. So, just, please stop me if you have any questions.

Then, this is, I think, where we really started speeding up. I just wanted to emphasize that

this is an area that we really need your input on populating these base case market share matrices for IRL which characterize the inventory in 2011 and 2042 of incandescent reflector lamps.

In the commercial sockets, we account for some lamps being of halogen infrared technology and some of them just being of halogen. But in the residential market -- residential sockets, we assume all of them are halogen technology.

MR. FERNSTROM: So this is Gary from PG&E. I have a question about this slide. Are you suggesting that the residential stock of IRLs is 100 percent halogen?

MS. GUPTA: That is correct. Of the covered incandescent reflector lamps, we assume all of them are halogen because we don't account for the incandescent portion of the residential stock because it's not part of our covered product.

MR. FERNSTROM: Thank you.

MR. BROOKMAN: Paul.

MR. WALITSKY: My guesstimates and visiting with Light Fair and a lot of manufacturers is that by 2042 you're going to have probably 50 percent of the lighting that's going to be LED.

So I think your emerging technology is going

to have a bigger share than you think. In 30 years, that's a good -- these lamps only last 3-, 4,000 hours. So the turnover rate is much greater than it is in fluorescent. LED is moving very quickly. You will see penetration into the household in some significant numbers in five years.

MS. GUPTA: Okay.

MR. WALITSKY: So we're going out 30 years. It's going to be mainly LEDs and probably still a few compacts left. Incandescents, I think, are going to go far -- and halogen are going to go far down.

The other thing that's happening in retail is that with Philips' 25-watt HID integrated, that's taking a share of the commercial market. So I think your IR is going to be much, much lower.

MS. GUPTA: Okay. And so, do you think we would see a difference in the penetration of these emerging technologies in the commercial versus residential? You're saying it's going to be much higher --

MR. WALITSKY: The commercial will come first.

MS. GUPTA: Okay.

MR. WALITSKY: It's already starting. Residential will lag behind, but it will get there.

Thirty years is a long time span and you're going to see a lot more -- I think you really need to get together with Jim Broderick and his group because they're working on LEDs. They've got market numbers which will swamp these. So I think you've got to -- you know, you've really got to talk to Jim and Jim's group.

MR. BROOKMAN: Thank you. Yes, Keith.

MR. COOK: Keith Cook, Philips. Yeah, I agree with what's being said. At the Atlanta DOE workshop on solid state lighting, every year they've underestimated the progress in solid state lighting.

MR. BROOKMAN: The technical progress.

MR. COOK: Yeah.

MR. BROOKMAN: Yeah.

MR. COOK: And so it's coming much, much faster than even Jim Broderick and his group has been able to estimate. Even the technical experts who provided the information to Jim have been underestimating that significantly. So I definitely support that.

MR. BROOKMAN: That's helpful. You talked about the increase. Could you hazard quantities?

MR. WALITSKY: Not being privy to the NEMA numbers, I don't have a base to work from. But what we

see in the LED field -- I know -- they're just driving forward. The white LEDs are now at the same efficiency as metal halide. You can get a white LED for 100 lumens per watt. Now, it may be, you know, $3,000, but you can do it, and those numbers are coming down. I mean, my laptop was $1,000. Now it's $500.

MR. BROOKMAN: Yeah.

MR. WALITSKY: Well, that's what's happening with LEDs very quickly. So this is what happens when you have a disruptive technology, which is what LEDs are. It will change the way we light our home.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: I think that most of what Broderick and -- he's just a couple doors down from me. Most of the objectives and most of the research money is on the sole metric of lumens per watt increasing on white LEDs. So the market penetration and the commercialization, DOE's role in the R & D is really more so in the development and hitting the benchmarks for white LEDs, the lumens per watt.

The commercialization and estimates there, if there's a source or outcome from the meeting in Atlanta or somewhere where people are making projections, if there's something we can note. Part of our difficulty is as we're choosing levels that people are going to

have to comply with, the more that we can quote and refer to bodies of expertise where there's been a thorough discussion versus choosing a number that's speculation.

People are going to have to comply with what we put in the regulation. So we try to -- if we make a mistake on a guesstimate of the evolution of technology -- we're limited. We have to look at max tech, the highest level we can identify. But then, because of the two criteria, the technical feasibility and the economic justification, we have to rule things out starting at the highest level.

So in setting the minimum level of efficiency that's allowable, we need to have a view on maybe the national impacts and make some projections. The more we can rely on bodies of expertise where they've talked about market projections and commercialization, the better that section will be. But our final decision is -- we can't put a heavy weighting factor on speculation that's something that's still to come.

MR. WALITSKY: Which is why I was loathe to give a number. I cannot do that.

MR. BROOKMAN: Yeah, right. I was wondering whether you all have access to -- whether you can track the manufacturing capacity and see how that's ramping

up.

MR. WALITSKY: You might check with EIA. They usually have numbers in the semiconductor type field. Because this is a different field now. Your statistics will show up in the semiconductor industry rather than in the lighting industry. So maybe do both.

But on a personal note, I made LEDs in 1972. I got a master's in management engineering at New Jersey Institute of Technology, and my thesis in '72 was to set up a company to make LEDs. So I see 30 years out, you know.

MR. BROOKMAN: We may see another career for you.

MR. WALITSKY: Yeah, right. But the red LEDs, which we made at the time, the reds and blues and greens, have been around for a long, long time.

MR. BROOKMAN: Okay.

MR. WALITSKY: White is where things are going.

MR. LEWIS: There was talk yesterday about the compact fluorescents. Those have been around for several decades as well. In speculating on when it would become a major influence, a lot of people would have guessed wrong on how long it took to ramp those up

with the potential they had. So we need to be a little bit careful on how we guesstimate those things.

MR. BROOKMAN: That takes us back to the base case market share matrices.

MS. GUPTA: Yeah. So, another important thing to know on this slide is that in the residential sector we assume of covered IRLs, not considering the emerging technologies, that the covered IRL will remain approximately the same efficacy, that they will remain to be halogen type over the entire analysis period. In the commercial sector we show a migration towards more halogen infrared technology by 2042.

MR. BROOKMAN: Do you have any other specific questions with respect to Slide 26?

MS. GUPTA: Do I?

MR. BROOKMAN: Yes.

MS. GUPTA: Well, I mean, I think the most helpful thing for us would be just to get your input on these inputs and populate these, if possible, and populate what you think the emerging technologies number is.

MR. BROOKMAN: So then, any specific edits, suggestions with respect to these numbers that are in the charts here would be helpful. Keith.

MR. COOK: Keith Cook, Philips. One thing we

noted yesterday was the fact you needed to include BR lamps.

MR. BROOKMAN: BR lamps. I made that note, too.

MS. GUPTA: Right now we only measure the impacts on the covered IRL because with the standards we don't -- we look at a separate scenario. In the base case, we only want to look at the energy consumption due to covered IRL. In the standards case, we may show an additional shift towards BR lamps, in which case we'll incorporate that into the shipment forecast. I don't know if that's clear, actually.

MR. BROOKMAN: I didn't get that. Say it again. BR lamps are not included --

MS. GUPTA: Yeah. BR lamps that are incandescent and exempted from standards aren't included in this forecast because we're not measuring the -- we don't need to take that into account in measuring the energy savings in the standards case.

In the standards case, if there's an additional shift towards BR lamps, then that will cause -- so, in the standards case we do take that into account, but in the base case forecast that doesn't need to be shown. We're just looking at what's the stock in the base case of our covered IRL. If there's

an additional shift towards BR lamps in the standards case, then we'll show that.

MR. BROOKMAN: Because it's not a covered item.

MS. GUPTA: Yeah, because it's not a covered item.

MR. BROOKMAN: In the base case.

MS. GUPTA: In the base case, right.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: But in the second column, then, in the stock in 2042, as we're showing some depletion and partial -- looking at the first line, the 90-watt, if we're looking at impacts, those impacts are attributed to something. We're looking at a decline in percentage of market share of that product, and that decline -- from what you just said, we do not consider BR as contributing to that decline; is that what you're saying?

MS. GUPTA: Well, if we were to assume that BR lamps were to have an increasing market share than they do today, then that would be considered in the emerging technologies. We would subtract that from the stock of IRL that we consider in the base case.

MR. LEWIS: Even though BR is not an emerging technology, it would be put in the category for --

MS. GUPTA: Right. Yeah, we could create a second category saying that, okay, we assume that -- we want to establish what the stock of covered IRL is in the base case and then look at what are the changes to that stock with standards, right?

So if we assume that BR lamps will have an increasing penetration, then we may subtract even more from that blue area and decrease our covered IRL stock in the base case.

MR. LEWIS: It's a little bit tricky here, also, with EISA legislation, where we're limited to the single size now, the 65-watt, as the only exception. So as we look at impacts, we've got to look at the net, then, between all the different sizes that were out there that have blossomed in growth to now what's going to happen with just a single size being available and how that affects the can lights that have grown in popularity. So there are a lot of dynamics here to look at.

MR. FERNSTROM: This is Gary from PG&E. The point of confusion I keep having is that it seems to me the vast majority of reflector lamps you find in homes aren't covered. So we're doing this analysis on a tiny part of the market.

MS. GUPTA: That's correct. We are -- I

mean, we're constrained by the definition in EISA and the exemptions in EISA.

MR. FERNSTROM: So, a lot of my comments stem from that point of confusion.

MR. LEWIS: But I think it does become clarified on the standards case as we look at substitution analysis and scenario kind of situations. I think that it would be absorbed there. So the net on that of national impacts on energy, it will show up there. But we can't consider it in the base case.

MR. FERNSTROM: I understand how you're doing your analysis. Given the rules of the game, that seems to me to be correct.

MR. BROOKMAN: Okay.

MS. GUPTA: All right. So these are the resulting IRL base case shipment forecasts. DOE calculated these shipments by tracking the retirement based on the lamp lifetime of IRL in the stock. You see a decline in the shipments, primarily due to the increased penetration of emerging technologies. The commercial sector shifts toward longer-lived HIR technologies.

So, any questions on this slide?

(No response.)

MS. GUPTA: So this shows the methodology

behind the standards case shipment forecast. The main difference here is that instead of using base case market share matrices, which I just showed you two slides ago, we substitute those with standards case market share matrices, where the baseline technology may no longer be available to purchase. So we see a shift in people's consumer choices.

Similar to fluorescent, we looked at various scenarios to characterize how consumers will respond to standards. One important thing to note is that we assume that the stock of covered IRL -- or, the stock of IRL lamps in the standards case is the same as the stock of IRL lamps in the base case. In one of the scenarios, though, we do subtract some of that stock and attribute them to the 65-watt BR lamp.

The main scenario that we analyze just assumes that all base case IRL consumers who are purchasing covered IRL product continue to purchase that same covered IRL product but just in a more efficacious form. They will basically just roll up to the lowest first cost lamp, and that is generally the least efficacious lamp available.

As I just talked briefly about before, we have the 65-watt BR lamp substitution sensitivity, which accounts for a standards case market migration to

the exempted 65-watt BR30 and BR40 lamps. So people currently purchasing a 50-watt PAR lamp may choose, with standards, to purchase a 65-watt BR lamp instead. We have market share matrices for that scenario as well.

So we would definitely like your input on what portion of people would be moving to the 65-watt BR lamp at different standard levels.

MR. FERNSTROM: A comment on that. This is Gary from PG&E. I find it very difficult to understand that substitution reasoning because in cans in homes the vast majority of customers are already using BR lamps. You find hardly any PAR lamps in those sockets.

So if we're talking about substituting BR incandescent lamps for the existing PAR lamps, that seems to me like a very difficult concept since they're vastly all incandescent BR lamps now.

MR. BROOKMAN: Paul, do you want to add on?

MR. WALITSKY: This is Paul Walitsky. The other aspect of PAR lamps is that, for a household, they're outside. You can't put a BR lamp outside. So if somebody's lighting up their backyards for security reasons and that kind of stuff, they can't switch.

MR. LEWIS: They can if it's an enclosed fixture --

MR. WALITSKY: Yeah, but most are just plugged into a socket and mounted on the corner of the house. Unless you change the sockets and put a fixture on, that's not going to happen.

MR. FERNSTROM: Gary from PG&E again. There is an issue with the distribution of lights. So you want the fairly broad distribution of PAR lamp and BR lamp in the house and you want a fairly directive distribution of a PAR lamp outside.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: One of the things -- I'm not sure -- I'm asking the team here as much as anything -- is, along with that, the issue as far as BRs versus PARs, which I also have concern about. But the final traction of CFLs in the target market is to be a replacement for incandescents, and even the shapes and the sizes that, as they become more compact. Even though the optics are different for CFLs, how that comes into play in this analysis of CFLs going into can lights as there's a more limited base of incandescents to put in there.

MR. FERNSTROM: Well, I think Pam Horner alluded to that yesterday when she talked about the directivity of light and the fact that we're mostly looking at efficacy here.

So CFLs work well in cans as a substitute for BR lamps except for two things in the market. The dimmable products, while they exist, aren't representing very much market share now, and secondly, virtually all of the CFL products have a much broader distribution than the IRL lamps, so that you don't get as much illumination on the work surface.

MR. WALITSKY: This is Paul again. I was just going to say, also, inside the house the PAR lamps are heavier. The household cans aren't strong enough in some cases. I've had offices where the lights are going out when we put the PARs in, and we put the lighter BRs in and everything is fine. That's another factor in the fixture acceptability.

MR. BROOKMAN: Michael Scholand.

MR. SCHOLAND: I'd like, maybe, to respond to Ron's question about CFL substitutions.

MS. GUPTA: Yeah. I was just going to say that our model does actually have the capability of looking at an increased migration to CFLs in the standards case. If you go to the spreadsheet, you can fill in a certain market share migration to that.

So if you feel that's something that should be incorporated into our standards case forecast, then please give us the numbers.

MR. BROOKMAN: Mike Scholand.

MR. SCHOLAND: Mike Scholand again. I wanted to respond to this question about the BR versus the PAR lamp, but I don't want to lose this thread here. Ron, did you want to respond to Mimi's --

MR. LEWIS: What I was going to just suggest is we've got three or four different things in play here all at once that all contribute to this projection. So any inputs that people have got that are comprehensive, that go across rather than just segments of how they interplay, would be very helpful.

With NEMA, as far as input as you're discussing the implications in the rulemaking, the shifts even. We've got a -- what was it, 2042 or something, time period here -- a long time period. Even if it's segmented, if there's a transition from one to the LEDs or projections of -- you know, any kind of specificity that is the observation, the expectation that you've got. If we've got some input from people to take a look at how that influences it, that could be helpful.

MR. SCHOLAND: Okay. Thanks, Ron. Mike Scholand again from Navigant. On this issue of the BR versus the PAR, I agree that PAR lamps are very frequently used on the exterior of homes for flood

lighting, but I don't think they're at 50 watts. I don't think that lumen package is accurate enough for flood lighting. I think it's 75 or, more often, 150 watts.

So the fact that these lamps exist -- and I'd like the NEMA folk, the representative from Philips perhaps -- because I know Pam is the main person -- reflector lamps for NEMA -- to maybe respond to this. But those lamps exist. They're sold. They're made by all three majors. So, at 50 watts, you don't have enough light for an area light outdoors. It has to be an interior. I don't think it's commercial because that's also not enough for the package.

I hate to bring my own experience in, but I do use PAR lamps in my home. I have 50-watt PARs screwed in, and I would not, you know, migrate to the 65-watt BR lamps. But some folks might be in my situation doing that and then looking at a first cost of an HIR PAR lamp, make a choice to go to the BR65. That's what we're trying to represent in the model.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: One possibility to account for the 50-watters and interior applications, even though it's a shrinking part of the market, is in track lighting as opposed to down lights: can lights where

you've got a suspension, a weight. When you've got track lights where you need a variety of beam spreads, where you've got things that are specific and they want that heavy-duty lamp as opposed to just a blown glass, it could be a major portion of that 50-watt market.

MR. BROOKMAN: Mike Scholand directed a question your way. Are you in a position to say anything about that?

MR. COOK: Keith Cook, Philips. I tend to agree with what Mike was saying. The one area that I think we are overlooking, though, is the retail market. You find more and more stores like Gap and those places which are using more and more of these lamps around the periphery of the stores to highlight the walls, the racks, and things like that.

It's a very booming market and it's something that I think we need to have a better understanding of as to how they're going to react to these kind of --

MR. BROOKMAN: Are those can lights?

MR. COOK: They are more track lights, usually.

MR. BROOKMAN: Track lights, yes.

MR. LEWIS: And wall washer lights.

MR. COOK: Yeah.

MR. LEWIS: Asymmetrical wall washers.

MR. SCHOLAND: Excuse me. Sorry, Ron.

MR. BROOKMAN: Mike.

MR. SCHOLAND: Mike Scholand again. At 50 watts, is that about the wattage that these lamps are?

MR. COOK: Yeah. It's usually between 39 and 75. It's in that range. It's a very, very booming market.

MR. SCHOLAND: Okay. Maybe we'll have a follow-up question with Pam. Maybe in NEMA's written submission they can make a specific comment on this, the apportionment, to make sure the model is right. Thanks.

MR. BROOKMAN: Okay. Thank you.

MS. GUPTA: Okay?

MR. BROOKMAN: Yeah.

MS. GUPTA: There's a lot of feedback.

Okay. So the third scenario that we look at is the 10 percent lumen increased sensitivity, in which we assume that not all residential consumers will know to go to reduced wattage lamps that give them the same lumen output but may rather purchase same wattage or higher wattage lamps that give them more of a light output. So that will result in an overall increase in lumens in the residential sector.

So here's an example of a standards case

market share matrix in the main scenario. In the column labeled "Stock in 2011," those are the same base market shares that we saw before in the commercial sector. As you can see, at CSL 1 the halogen technology is no longer available. So all halogen -- consumers purchasing halogen in the base case must move to an improved halogen lamp in the standards case. People purchasing HIR in the base case continue to purchase HIR.

Then, at CSL 2, you have everyone in the commercial sector purchasing HIR lamps. At CSL 3, you have everyone in the commercial sector purchasing improved HIR lamps.

Any questions?

(No response.)

MS. GUPTA: In the residential sector, it's very similar except that we don't have that part of the market -- HIR lamps in the base case. So it's pretty much just a roll-up. Everyone goes from purchasing halogen to improved halogen at CSL 1, to HIR at CSL 2, and improved HIR at CSL 3.

So this is just the main scenario market share matrix. If you want to look at some of the sensitivities, including the BR lamp sensitivity and the inputs that we have for that market share matrix,

you can find that in Appendix 9B of the TSD, I think. Is that correct? So. I think it's 9B.

So, are there any other questions on the IRL shipment forecast?

MR. FERNSTROM: This is Gary from PG&E. I'd just like to make the observation that what you've seen looks pretty reasonable to me for the applications that we've been talking about for PAR lamps in the residential and commercial sector. That would be outdoor residentially and track lighting and in commercial track lighting and display lighting around store perimeters and so on.

MS. GUPTA: Okay.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: Gary and others, if you have any data, if you have any -- even if it's anecdotal but if you can quantify it in some way, of the can lights that are dimmable right now. There was a generalization made yesterday of a lot of them being dimmable, but there have been problems with dimming and even with halogen lamps. You have to bring them up to full cycle sometimes. You lose that -- you're paying a premium for the technology but you don't get the advantage of it if you don't rejuvenate the halogen cycle there in the lamps.

So in looking at the impacts that would have on substitution analysis and CFLs and things, any input that you might have on percentage of those fixtures, the lumineres using these lamps, it would be good to have some kind of calibration of what we approximate that use to be.

Certainly, that would be more so in the residential sector than the commercial sector, where they want all the light they can get. You're probably not going to be doing a lot of dimming. It's for display lighting and merchandising.

MR. FERNSTROM: So, I believe we do have some information on that for California. California might be a little unique with respect to the nation on account of Title 24 and the way it treats residential lighting. But we'll get that for you.

MR. LEWIS: Thank you.

MS. GUPTA: Mike Scholand just held up a sign to me saying that the market share matrices are actually in Appendix 9A, not 9B. Sorry about that.

MR. SCHOLAND: A quick follow-on to Ron's comment. Gary, maybe this is what you were referring to. Yesterday reference was made to a residential inventory sub-meter study that was done in the State of California in 2005, I think, that was meant to be like

a similar study, I guess, to the Tacoma Public Utilities from '96. Is that the study you're going to be providing to the Department?

MR. FERNSTROM: What I was going to do was get information from the California Lighting Technology Center. I think they may have done some work themselves in addition to referring to the RLW study and a study done by HMG Consulting on the distribution of residential lamp types.

MR. LEWIS: Is that Mike Simonovich?

MR. FERNSTROM: Yes.

MR. LEWIS: Okay.

MR. SCHOLAND: Thank you, Gary.

MR. BROOKMAN: Okay.

MS. GUPTA: All right. So now I'm going to just talk a little bit about the calculation of national energy savings and the inputs that go into that.

National energy savings is composed of the product stock by design, which is developed in the shipments model; the unit annual energy consumption, which we establish in the energy use characterization; the electricity site-to-source conversion factors, which we calculate from the 2007 Annual Energy Outlook; and HVAC interaction. For the commercial and

industrial sector, we used HVAC interaction of 6.25 percent, and we got that number from the 2000 ballast rulemaking. We did not model HVAC interaction in the residential sector.

We also incorporated a rebound rate that accounts for the increased lighting usage due to lower operating costs. In the commercial and industrial sectors we used a number of one percent for the rebound rate, and in the residential sector we used a number of 8.5 percent.

Does anyone have any questions or comments on the inputs to the national energy savings calculation?

MR. BROOKMAN: Keith.

MR. COOK: Keith Cook, Philips. I wasn't sure I understood what the six and a quarter percent on the HVAC interaction is. That's percentage of what?

MS. GUPTA: That's percentage of total energy savings.

MR. COOK: From what? I guess it would be dependent upon the amount of energy being saved, wouldn't it?

MS. GUPTA: Right. So we increase our energy savings estimates by 6.25 percent.

MR. COOK: Going from what to what?

MS. GUPTA: So, calculating our energy

savings just due to lighting. If we have -- I'm not sure if I understand your question.

MR. BROOKMAN: The heat load is diminished?

MS. GUPTA: Yes.

MR. BROOKMAN: So the air conditioning cost is diminished?

MR. COOK: Right.

MS. GUPTA: Yes.

MR. BROOKMAN: Yes?

MR. COOK: But that means that from a base case to CSL 3 or --

MS. GUPTA: So, at CSL 3 we calculate an energy savings just due to the reduced energy consumption of lighting, right. And then we --

MR. COOK: That's what I don't understand. Which candidate standard level are you using?

MS. GUPTA: Okay. For each candidate standard level we calculate a separate HVAC interaction. So if at CSL 3 we save one quad due just to lighting, then we'll increase that one quad by 6.25 percent. So we'll be saving 1.0625 quads instead at CSL 3. If at CSL 2 we're saving two quads, then we increase that two quads by 6.25 percent. So that would be 2.125 quads that we'd be saving. Is that clear?

So you're just multiplying the energy savings

at each candidate standard level by this percentage.

MR. COOK: It doesn't make sense to me. You don't always get the same amount of energy savings as you go from class to class. So the amount of savings you see from your change in HVAC load would vary depending upon the total amount of energy savings.

MR. FERNSTROM: This is Gary from PG&E. I think the question has to do with to which standards improvement level does the 6.25 percent refer.

MS. GUPTA: Every standard.

MR. FERNSTROM: Well, if -- but it has to vary because the air conditioning impact is a fraction or percentage of the total energy.

MS. GUPTA: Right. So we assume that for --

MR. FERNSTROM: Oh, that's the percentage.

MS. GUPTA: It's the percentage.

MR. FERNSTROM: I understand. It's a percentage.

MS. GUPTA: Yeah, it's a percentage. So, as you save more energy due to lighting, you're going to save more energy due to HVAC. It scales up.

MR. COOK: Oh, so it's six and a quarter percent of the energy savings from the lighting you attribute to the HVAC.

MS. GUPTA: Right. Exactly.

MR. COOK: I get it, I get it. Okay.

MR. BROOKMAN: Paul.

MR. WALITSKY: This is Paul Walitsky. Where did the -- it was in the ballast rule --

MS. GUPTA: Yeah.

MR. WALITSKY: -- the 6.25?

MS. GUPTA: The ballast rulemaking did an analysis for the HVAC interaction, and they established 6.25 percent as that HVAC factor. We looked at how that number might change given time, but due to lack of information we were only able to estimate that given opposing -- the various opposing factors, and we estimated that that number would not change significantly during the analysis period that we're looking at.

MR. FERNSTROM: Okay. So, an observation about that, then. That 6.25 percent seems to me to be a relatively low number because it's our sense that the heat that is produced by these products goes directly into the building and it takes about one unit of electric energy to remove three units of heat. So 6.25 percent is a relatively conservative number.

MR. WALITSKY: Yeah, this is Paul Walitsky again. The rule of thumb in the field when people are changing lamps for living -- Amtech and the service

people -- is about a quarter of a watt for every watt you save in the ceiling. That's where -- make their money because they don't pass that on. That's their profit margin. So they look at that pretty closely.

I would look at NELCO, the National -- those guys and see who has some data because, I agree, I think the 6.25 is on the low end.

MS. GUPTA: So, is that lighting-specific, those estimations?

MR. WALITSKY: Yes. The lighting people, the service lighting industry, NELCO and there's another group that are the service people. They have a better idea.

MR. BROOKMAN: And it's for switching out fixtures?

MR. WALITSKY: Yeah.

MR. BROOKMAN: Relamping?

MR. WALITSKY: Exactly, exactly. That's their bread and butter.

MR. BROOKMAN: Michael Scholand.

MR. SCHOLAND: I just wanted to chime in. The issue of the six and a quarter percent, I think it's looking nationally and it's looking over a full calendar year. Obviously, in the northern regions of the country there will be heating load and actually the

lighting is providing a service that the HVAC doesn't need to provide.

This study was actually done by Berkeley National Lab and was pretty thorough at the time. As Mimi said, the same data is not available to us now. It hasn't been updated. So as a surrogate, not to ignore the issue, we wanted to put something there.

MR. BROOKMAN: Gary, go ahead.

MR. FERNSTROM: Gary from PG&E. That explains it. I was looking at --

MR. BROOKMAN: If it's national and if it's a year-long basis.

MR. FERNSTROM: Year-round, yeah.

MR. WALITSKY: When we relamped our building, we had to add in another $3,000 for night heating because the building has no central heat.

(Laughter.)

MR. WALITSKY: But we accounted for it. I still got -- Energy Star manufacturing --

MR. BROOKMAN: Okay.

MS. GUPTA: Are there any other questions on the inputs into the national energy savings calculation?

MR. LEWIS: I love it when we have a lively discussion and end up at the same place we started.

Yeah, that's probably right. I love it when that happens.

(Laughter.)

MS. GUPTA: So, to calculate net present value, the inputs are the shipments, taken from the shipments analysis; the per-unit installed cost, which we establish in the product price determination in the lifecycle cost analysis; electricity prices, the averages prices taken from the LCC analysis. Future energy prices are adjusted according to trends in AEO 2007. We use a seven percent and a three percent real discount rate, and future expenses are discounted to 2007.

Also, to account for remaining lifetime of lamps at the end of the analysis period, we calculate a residual value in both the base case and the standards case, similar to the LCC discussion yesterday.

Is there any comment on the inputs into the net present value calculation?

(No response.)

MS. GUPTA: All right. So now I'll just show some of the results here. These are the national energy savings and net present value results for general service fluorescent lamps in the shift scenario. As you might remember, we looked at two

different scenarios in the GSFL NIA, the roll-up and the shift. The shift is generally showing higher energy savings than the roll-up.

So you can see here generally across all of the lamp types we have increasing energy savings with CSL, and generally, most standard levels are shown to be cost effective.

MR. BROOKMAN: Gary.

MR. FERNSTROM: Gary from PG&E. I recall yesterday we had a discussion about the utility prices and thought at least for California they were shown to be low in the analysis.

MS. GUPTA: And then for IRL, we have something similar. The national energy savings, shown in the bars, are increasing with increasing CSL. The net present value also increases with CSL.

Any comments on the results?

(No response.)

MS. GUPTA: All right. So this concludes our recap of the national impact analysis. Are there any other, further comments on any of these topics: base case, standards case, market share matrices?

MR. BROOKMAN: For those of you that want to refresh your memory, you can look at Slide 38 there and see a brief summary of the major topics.

(No response.)

MR. BROOKMAN: Okay.

MS. GUPTA: Okay. So, should we just move on to the next section?

MR. BROOKMAN: Yes.

NOPR Analyses

Mahima Gupta and Frances Wood

(PowerPoint presentation.)

MS. GUPTA: All right. So now we're going to be just talking briefly about some of the NOPR analyses we'll be conducting and the next steps of the rulemaking.

So, after this public meeting and a period of comment, we'll be going through several processes to complete the notice of proposed rulemaking, or NOPR. The first step in the NOPR is to revise the ANOPR analyses that we've discussed today based on new data and input from stakeholders. So we'll consider the ANOPR comments that we've received today as well as written comments and revise the analyses using the latest data. Those analyses will be the three main analyses as well as their inputs that we talked about today: the engineering, lifecycle cost, and national impact analysis.

The next step in the NOPR is to establish

trial standard levels. In the ANOPR, DOE is required to present CSLs, or candidate standard levels, for stakeholders -- for public comment, and from the candidate standard levels there are specific criteria that are used to determine the trial standard levels. Each trial standard level consists of a set of candidate standard levels covering all product classes, and they may vary between product classes.

Candidate standard levels cover a range of efficacies and can include the most energy efficient level, or max tech, the efficiency level with the lowest lifecycle cost, efficiency levels with noteworthy technologies and efficiency levels that fill in large gaps between candidate standard levels.

The trial standard levels are a critical part of the NOPR analysis, and we definitely would appreciate your input on the trial standard levels that should be chosen. As I just said before, they're created from combinations of the candidate standard levels that we've discussed today.

I think Mike Rivest addressed a comment yesterday about we would probably create a separate set of trial standard levels for general service fluorescent lamps than we would for incandescent reflector lamps. Oftentimes the trial standard levels

are based around a consistent theme.

Does anyone have any comments on trial standard levels?

(No response.)

MS. GUPTA: All right. So the next step in the NOPR analysis is the LCC subgroup analysis. The purpose of the LCC subgroup analysis is to evaluate the economic impacts of standards on consumer subgroups. Some of these subgroups may include consumers operating lamps in a variety of sectors, how consumers in the commercial sector may be affected differently from the residential sector, consumers operating lamps in a variety of building types, consumers replacing different baseline lamps. Consumers replacing a T12 baseline may have different economic impacts than those replacing a T8 baseline.

And, consumers purchasing due to the several events that we spoke about yesterday. So a consumer purchasing a lamp if their ballast has died, their economics may be different than a person who is just purchasing a lamp because their lamp has died.

Another possibility is that we may consider analyzing the impacts on low-income consumers. DOE welcomes comment on how the LCC inputs might change for each consumer subgroup.

No comments?

(No response.)

MS. GUPTA: The next step in the process is the manufacturer impact analysis. The purpose of the manufacturer impact analysis is to assess financial and other qualitative and quantitative impacts on manufacturers due to standards. During this analysis we'll identify manufacturer subgroups also that we should consider in more detail.

In addition, we'll also consider the cumulative regulatory burden on manufacturers. So if some manufacturers are manufacturing other products that may be subject to regulations, we'll consider that as well.

In completing the manufacturer impact analysis, we'll utilize two major tools. One is the Government Regulatory Impact Model, or GRIM, and the second is interviews with manufacturers. The output of the manufacturer impact analysis is industry net present value impacts, subgroup net present value impacts, and any other impacts.

So the MIA, or manufacturer impact analysis, consists of three phases. For phase one, we do a preliminary manufacturer impact analysis to create an industry profile. We use the industry profile

developed in phase one as an input into the preliminary GRIM. In phase three, we take the information from interviews and recalculate the GRIM based on that information.

Here's just a flow diagram to see how the different phases of the manufacturer impact analysis fit into the other analyses that we have discussed today and yesterday and some that we'll be discussing further in an upcoming presentation.

So, phase one, which is the industry profile, is an input into the engineering to help us establish an engineering analysis. Then the engineering, LCC, and national energy savings analyses are used to develop the preliminary GRIM. Then phase three, which is composed of manufacturer interviews, revised industry cash flows, the manufacturer subgroup analysis, and a qualitative assessment of manufacturer impacts is done in conjunction with the NOPR analyses, which are the LCC subgroup and utility, environmental, and employment impact analyses, which we'll be discussing shortly.

All right. So just for a little bit more detail, in phase one we look at all publicly available information, like industry reports and annual reports, to create an industry profile. Here are some of the

data sources that we might use.

In phase two, we develop the preliminary government regulatory impact model. The GRIM is an industry cash flow analysis that estimates the change in industry value due to the introduction of new energy conservation standards. As you can see in this slide, manufacturer prices and shipments, manufacturer costs, and financial information are key inputs into the GRIM, out of which results the cash flow impacts and changes in industry MPV.

The second step of phase two is to develop an interview guide. We generally mail this interview guide to manufacturers before the interview so they can look over the questions and prepare answers. The interview guide will include engineering analysis results, shipment results, cost structure and financial parameters, conversion costs, impacts of other regulations, direct employment impacts, export issues, consolidation of the industry, replacement parts, refurbishments, impacts of standards for the effective date, and other topics that manufacturers feel that are important to this rulemaking.

Phase three of the MIA actually includes the interviews, and these will take place after the ANOPR comment period closes. They will typically be on site

at manufacturers' facilities.

I'd like to also emphasize that when we conduct the manufacturer impact analysis we stress confidentiality. So a contractor with DOE will establish a nondisclosure agreement with the manufacturers so we can conduct the interviews.

Finally, another part of phase three is the manufacturer subgroup analysis. The subgroup analysis is a more focused version of the industry-wide analysis where we will gather information about what subgroups or characteristics are most important and how smaller manufacturers may be impacted by standards.

The final part of phase three is taking all the information that we've gathered and revising the inputs into the GRIM and getting some new numbers out of the model. Also, we look at qualitative impacts on the industry, such as competitive impact assessment, manufacturing capacity impact, employment impact, and cumulative regulatory burden.

Now I'm going to turn the podium over to Frances Wood from OnLocation to speak about the utility, employment, and environmental analyses.

MS. WOOD: Hi. Just to give you a brief overview of these three additional analyses that are done as part of the NOPR processes.

The first one is the utility impact analysis. Basically, the idea here is to look at the impact on the utility sector of the various efficiency levels due to the potential standards. We'll be using a model I think many of you are familiar with, the National Energy Modeling System, a variant of that. This is the model EIA uses to produce the Annual Energy Outlook.

It's been tailored slightly to our use for the Building Technology program, so we call it NEMS-BT. Basically, the modification is to allow us to take the energy savings that Mimi has already shown and input them into the model as energy savings in lighting for the residential, commercial, and industrial sectors.

The model is run under the base case, which is essentially the AEO, and then under different levels with these additional energy savings and reductions in electricity consumption resulting from the standard levels. From that we can measure the difference effect that the standards are causing, and we can look at the change in energy sales by region -- that is essentially the input from the previous analysis -- the change in the mix of electricity generation, and the change in the mix of new capacity construction.

The anticipation is with reduced electricity demand we will see a slight reduction in new capacity

construction and we may see a slight shift in the mix of generation types.

This is going to be a very brief overview, so if there are any questions about the utility impact, this might be a good time to ask.

(No response.)

MS. WOOD: Seeing no questions, I'll move on to the employment impact analysis. This is to look at the net jobs to the economy of the proposed standards. This goes beyond the manufacturing impact to the rest of the economy.

The tool used here is -- I see a question already.

MR. FERNSTROM: Gary from PG&E. Could we go back to the utility analysis for just a moment? You're going to look at the potential change in the mix of electric generation, and I presume under that category, if there comes to be some sort of carbon trading or carbon tax you'll look at how this energy savings relates to utilities perhaps more easily being able to meet their carbon emission requirements?

MS. WOOD: Traditionally, the impact analysis and all of these analyses are done with the reference case, which is current laws and regulations, rather than trying to speculate on new policies. At the

moment there is no national carbon legislation, so we wouldn't see the result of that, although that effect you postulate is an interesting one. But it's sort of outside the usual forecasting that we do.

MR. BROOKMAN: If there were some kind of carbon legislation, how would you deal with it?

MS. WOOD: The carbon legislation can be represented in the model, depending on what kind of legislation it is, as a cap and trade program, in which case, either for utilities only or for the entire energy sector, which is being discussed on the Hill. So we would represent that as a cap that must be met, and the model would solve for carbon allowance prices to meet that cap.

Certainly, appliance standards would then change the energy consumption pattern and affect how difficult it is to meet that cap and therefore the carbon allowance prices. So the model can handle that kind of question.

MR. FERNSTROM: Okay. So I understand how it may not be appropriate to speculate. On the other hand, the effects of this rulemaking go out decades. I think of all of the issues, you know, facing the utility industry, this carbon one is perhaps the most significant. So it might be a good idea to give some

thought to that.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: Stay tuned. It's a little bit premature, but as you're aware, a very dynamic time that we're in in exploring this and looking at in the stance of the U.S. Government at large, not just the Appliance Standards Program. So this is only the ANOPR. We note that there probably will be some impact in the future, but right now, at this time, we can't include it in the ANOPR.

As we move forward, there's a strong possibility that this will be incorporated in some way in the future, but right now in the ANOPR early stage we can't really handle it. So, thanks for the input and watch closely in the future.

MR. FERNSTROM: Okay. Thank you.

MR. BROOKMAN: You said the model does have the capacity to deal with this.

MS. WOOD: In fact, it's been used by EIA and others to look at a lot of carbon legislation being proposed by Congress in the last couple years.

MR. BROOKMAN: Thank you.

MS. WOOD: So, moving on back to the employment analysis, this one uses a different tool of looking at jobs, a spreadsheet model. It's an

input/output model of the economy, taking information from previous analyses, looking at the change in both the cost of the products and the energy expenditure savings to impact -- to look at both substitution effects and income effects that may change what people purchase that then has a ripple through the economy to jobs in other parts.

The direct employment impacts specifically on the lighting manufacturers will be handled in that previous analysis described, the manufacturing impact analysis. This one is looking at the general economy, looking at net job impacts.

The environmental assessment looks primarily at, in terms of the environment, again sort of related to the utilities, the impact that reducing electricity consumption for lighting will have on emissions, primarily from power generators. Again, this energy savings comes from the national impact analysis, and NEMS-BT will be used to look at power plant emissions.

Air emissions are of many different kinds. The primary impact that we'll look at will be CO_2 emissions, which is clearly a very relevant topic, as we've just discussed. We also can look at SO_2 and NOx emissions. However, both of these are effectively capped through current legislation, and so we don't

really anticipate seeing any savings from the standards for those two types of emissions.

Mercury and the cap and trade rule. Originally mercury was capped by the mercury rule, but that was recently overturned by the Supreme Court. It's now unclear what EPA will do. EPA will have to do something on mercury regulations, but replacement regulations are not yet determined. So there's a little uncertainty of how we will treat mercury in this rulemaking, and I think part of it will have to do with, as we go through the stages, how much of future policy becomes defined so that we can actually represent something.

I think our default case will probably be the continuation of the cap and trade because that shows significant reductions in mercury and any replacement will also likely require significant reductions in mercury emissions. But if anybody has any comments on the treatment of that, you're welcome to provide comments.

Thank you. Now we'll switch back again and Mimi will present the regulatory piece.

MS. GUPTA: All right. So I'm going to be talking about the regulatory impact analysis. Basically, the regulatory impact analysis looks at non-

regulatory alternatives to energy conservation standards that may cause people to purchase higher efficiency or higher efficacy lamps. It looks at whether you could get the same national impact savings at a given level using these non-regulatory approaches.

Some of them that we will be looking at are consumer tax credits, customer rebates, enhanced education programs, and bulk government procurement of higher efficiency equipment.

To do this, we'll basically modify the inputs into the national energy savings spreadsheet that we just talked at length about. Most of that will be modifying the market share matrices that we've been talking about.

So instead of having -- with standards, what you generally do is you have people who are purchasing below the standard, 100 percent of the people now have to move. In a non-regulatory alternative, instead of having 100 percent of the people moving you would have a portion of those people moving to higher efficacy alternatives or higher efficacy lamps given the incentives that we're creating.

We calculate a national energy savings and a net present value for the non-regulatory alternatives.

That concludes the NOPR analyses section.

Are there any questions?

(No response.)

MS. GUPTA: Okay. So, should we go on to the closing slides?

MR. BROOKMAN: Yes.

MS. GUPTA: Okay.

MR. LEWIS: Please do.

(Laughter.)

MS. GUPTA: So we appreciate your patience and your comments over the past few days. Just as a recap, I just wanted to put up the seven EPCA factors again that we talked about at the beginning of this public meeting and some of the analyses that we've talked a little bit about: the lifecycle cost analysis, the manufacturer impact analysis, engineering analysis, national impact analysis, and the analyses of environmental, utility, and employment that we've been talking about.

How to submit comments. Your comments are very important to us. It will help us really improve our analysis. All of the comments that you guys have been gracious enough to give us at the public meeting have been captured in the transcript, and we'll consider those in developing the NOPR. We would appreciate written comments as well. You can do that

by e-mail, mail, or courier.

As I said in the beginning of the day yesterday, the ANOPR comment period is scheduled to close 30 days after publication of the notice in the Federal Register. The notice is scheduled to be published on March 13th, so if all goes well, the ANOPR comment period should be closing on April 12th. So we would appreciate your comments by that date.

Thank you very much.

MR. BROOKMAN: Thank you. Back to Ron Lewis for -- comments before we turn it back to Ron Lewis. Keith and then to Gary.

MR. COOK: Keith Cook, Philips. One question. How can we get a copy of the presentations?

MS. GUPTA: The presentation will be posted online.

MR. COOK: Because it does a great job of capturing all the salient points and it would be good to use that as a way to provide comments.

MS. GUPTA: Yeah, definitely.

MR. BROOKMAN: Okay. Gary?

MR. FERNSTROM: Before we close, yesterday Andrew Delaski made some opening remarks. I'd just like to add on PG&E's behalf our appreciation to the staff and consultants who are doing a really great job

with this process and giving us the opportunity to comment.

MR. BROOKMAN: Thank you. Paul.

MR. WALITSKY: I'd like to echo that. I think, as I said last night to some people, that our comments are mainly fine-tuning and just tweaking here and there, I think because you did a good base job.

The one comment I would make, and I've been thinking a little bit about it, is that because NEMA has been -- numbers, but as you pointed out, it only represents 90 percent in one case and 85 percent in the other for the IRLs. Is there going to be any effort to get to the other 10 or 15 percent, and how do you do that? It's not easy because some of them are fairly small companies, like Penn Electric and there's the guy at New Fargo and there's Halco. There are smaller companies that are not members of NEMA. You can find them, but whether they're really impacted, the analysis may not be worth, you know, the while to do.

But it is another part of it. They will most likely be affected from an impact from an employment standpoint because some of their technologies are older, and they're going to fade away. So that's the areas where they may have a disproportionate impact even though they're a much smaller share of the market.

So I think that's something to keep in mind.

MR. BROOKMAN: Mike Scholand.

MR. SCHOLAND: Mike Scholand. Yes, Paul, thanks for that comment. Two responses. One is that basically NEMA's data is, as you say, representing the vast majority of the market. We use the 85 and 90 percent estimates to scale up the shipments that they've given us to make sure that we're representing shipments for the country as a whole, including the small manufacturers who are not members of NEMA.

So from a mathematical point of view and a calculation point of view, the analysis stands and is representative of the country.

One of the things that Mimi alluded to in the manufacturers impact analysis, which is going to be conducted between now and the NOPR phase, is to look at the impacts on manufacturers, and a subset of that -- you may remember her talking about the small business impacts. There is a small manufacturers subgroup analysis. In that analysis in particular we'll be looking at differential impacts on small manufacturers of the regulation.

In some cases, those impacts can drive the standard the Department goes to. For example, in distribution transformers, impacts on small

manufacturers was a driving force behind the selection of the standard level for medium voltage dry type.

So we're very interested in you providing the names of those companies, contact information, and so on. DOE will take that into consideration and make that part of its analysis in the small business impacts.

MR. WALITSKY: I can put together some list. It won't be exhaustive, but it will have some you may not know.

MR. SCHOLAND: I know we know some.

MR. WALITSKY: I can, of course, check with NEMA to make sure they're not members.

MR. SCHOLAND: Sure. We do know some. Obviously, Ron's experience in the industry is very helpful for the team. But anything you have to contribute, that would be very helpful. Thanks, Paul.

MR. BROOKMAN: Okay. So then, yes, please.

MR. HANSEN: Dain Hansen with NEMA. I just want to thank everyone for this opportunity. Anything you need from us. I'm sure we'll be hearing from everyone, and we'll be giving some good comments. We look forward to working with you on this rulemaking.

MR. BROOKMAN: Thank you. Final comments before I turn it back to Ron?

(No response.)

MR. BROOKMAN: So, one thing we always do is we evaluate these sessions, so I'm going to hand out these evaluation forms. They're very brief. It will take you only 30 seconds, unless you wish to spend more time on them. Ron Lewis.

Closing Remarks

Ron Lewis

MR. LEWIS: Yesterday I was a little bit over reactive when somebody suggested we just finish up yesterday.

(Laughter.)

MR. LEWIS: When I knew all that the team had gone through to not just put this together but the difficulty originally where we had the general service incandescent lamps to consider as well and an incredible heroic effort of trying to get their arms around that. And then, at the eleventh hour on December 19th, the new legislation removed that from this rulemaking that was almost completed, the ANOPR, and they had to go back to the drawing boards, redo all the analysis, take out the impacts of that.

They have worked incredibly hard to put together the presentations that they have made in the last couple days. So it was kind of a sensitive area

yesterday knowing how hard they had worked to get this together to try to rush through it and not have a full dialogue.

I especially appreciate everybody that showed up for the second day.

(Laughter.)

MR. LEWIS: And not just show up to be a spectator but were clearly participants and gave us a lot of good comment. We really appreciate that because, at the end of the day, we all have to live with this. We may not all agree and have the exact same perspectives on things, but we want to have a good discussion and make sure we agree on all the elements that are in play and can put attention to those.

So thanks again for being here. Some of the people that didn't make it had some bad weather and had planes canceled and things. We hope that your journeys back home are comfortable and safe. We look forward to, as we progress from this ANOPR, advance notice, to the notice, which is one notch up in being official and being a proposed level, that we'll have some good comments from you. We'll give serious attention to those, and we'll have another good dialogue and approach the final rule with everything on the table.

So, thanks again for your input. If you have

questions, we will be posting the presentations on our website. So you will have those to work with. If you haven't worked with the TSDs before, they are the cure for insomnia.

(Laughter.)

MR. LEWIS: We measure them by the pound.

So if there's any question that you have that wasn't presented here, it's probably in the TSD. That's also on our website, popular reading.

So, thanks again for being here.

(Whereupon, at 10:30 a.m., the meeting was concluded.)

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before:

UNITED STATES DEPARTMENT OF ENERGY

In the Matter of:

PUBLIC MEETING ON TEST PROCEDURES FOR GENERAL SERVICE FLUORESCENT LAMPS, INCANDESCENT REFLECTOR LAMPS, AND GENERAL SERVICE INCANDESCENT LAMPS

AND

ENERGY CONSERVATION STANDARDS FOR GENERAL SERVICE FLUORESCENT LAMPS AND INCANDESCENT REFLECTOR LAMPS

Were held as herein appears and that this is the original transcript thereof for the file of the Department, Commission, Board, Administrative Law Judge or the Agency.

Further, I am neither counsel for or related to any party to the above proceedings.

Debra Derr
Official Reporter

Dated: April 5, 2008