UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

PUBLIC MEETING ON ENERGY CONSERVATION STANDARDS FOR WINE CHILLERS AND MISCELLANEOUS REFRIGERATION PRODUCTS

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AGENDA

P R O C E E D I N G S

MR. BROOKMAN: Good morning everyone and welcome. This is the U.S. Department of Energy's public meeting on Energy Conservation Standards for Wine Chillers and Miscellaneous Refrigeration Products.

Today is February 22, 2012 here in the Forrestal Building in Washington, D.C. Glad you could join us. Thanks for being here for an early start on the day. My name is Doug Brookman from Public Solutions in Baltimore. It's our tradition to start off with introductions around the room. I'll start over here, please. Say your name and organizational affiliation. Most of you are used to turning on these microphones. Please do so.

Introductions

MR. HON: Charlie Hon, True Manufacturing.

MR. GREENBLATT: Jeff Greenblatt, Lawrence Berkeley National Lab.

MS. CLAYBAUGH: Erin Claybaugh from Lawrence Berkeley National Lab.

MS. MAUER: Joanna Mauer, Appliance Standards Awareness Project.

MR. BROWN: Bill Brown, GE Appliances and Lighting.

MS. CLEARY: Jen Cleary, Association of Home Appliance Manufacturers.

MR. LEYBOURN: Steve Leybourn, Association of Home Appliance Manufacturers.

MR. NSOFOR: Kenneth Nsofor, Navigant Consulting.

MR. KIDO: Michael Kido, DOE.

MR. ADIN: Lucas Adin, DOE.

MR. WESTPHALEN: Detlef Westphalen, Navigant Consulting.

MS. STEPHENS: Amanda Stephens, EPA.

MR. BROOKMAN: Thank you. So, glad you could join us. Once again, thanks for being here. Many of you, perhaps most of you are familiar with these proceedings. I'm going to do a brief agenda review.

Agenda Review

You received a packet of information when you came in the door that included the agenda and the PowerPoint slides that would be the basis for both presentation and discussion as we go on today. Immediately following this agenda review, there's an opportunity for anybody that wishes to do so to make opening remarks, brief, summary statements about issues that matter to you, particularly those that you

wish to have discussed fully during the course of the day

Immediately following that, we will have a regulatory history overview by Lucas. We will move from there to a description of scope. And we'll take a mid-morning break, round about 10:30 or so. Immediately following the break, a rulemaking overview and framework and test procedure description. Of course all of these content areas provide an opportunity for discussion and comment. Following that, market technology assessment, screening and engineering analysis.

We'll take lunch midday, round about 12:15 or so. Following lunch, markups, energy use, life-cycle cost and payback period analyses; followed by shipments and national impact analyses, manufacturing impact analysis, NOPR analyses. And then we are guessing that we'll be finished some time after two o'clock, 2:30 or so this afternoon. There's yet another opportunity for anybody to raise additional issues, additional comments that they'd like to make at the close.

So that's the agenda as written. Any questions and comments? You'll also note there are many individuals who have joined us via the web. How

many do we have via the web? Fifteen. Okay, welcome to those joining by the web. The Department of Energy is trying hard to make these meetings accessible and productive, both, and so what we're going to try to do today is – GoToMeeting is the software vehicle, right? Most of you who have joined us via the web, we'll try to provide – we're going to try it – an opportunity for you to raise questions and comments during the course of the meeting. Our webmaster, Emily, is going to be cueing individuals to ask questions and those of you that are joining us via the web, please keep your phones on mute so we don't get feedback here in the system, because otherwise, it will kind of blast us out here in the meeting room itself. Okay. So we'll try to make that happen.

I will ask for your consideration. As you can see, I've written up here what I think is not much more than common sense and courtesy. Please speak one at a time. Please say your name for the record each time you speak. I will be cuing individuals by name as best I can. I also wish to encourage follow on comments. The back and forth is sometimes very useful for the Department. There will be a complete transcript of this meeting. We'll describe where you can find the transcript a little later on.

If you can keep the focus here. Please turn your cell phones on silent mode. Limit sidebar conversations. You've already figured out how to turn the microphones on and off with a little LED button, and if you could be concise. Share the air time.

So, as we had said, now is an opportunity for anybody that wishes to make brief summary statements here, raise issues here at the outset. Yes, please.

Introductory Remarks

MS. CLEARY: Jen Cleary from AHAM. In its regulation of wine chillers, DOE should adopt or harmonize with the existing Canadian and California standards and test procedures for wine chillers. There is no need to start from scratch by going through an extensive analysis when appropriate standards and test procedures are already in place. In particular, we would make this comment with regard to items 1-18, 3-2, 3-3, 5-1, 5-3, and 5-4.

In addition, DOE should reevaluate its priorities and not focus on products with little opportunity for energy savings when there are more pressing matters before the Department. For example, the battery charger rulemaking, the dishwasher rulemaking, clothes washer rulemaking test procedure

correlation issues, just to name a few. In some cases, in this rulemaking, DOE is going too far by attempting to regulate products that have very low volumes and/or use small amounts of energy annually. We would make this comment particularly with regards to items 1-11, 1-13, and 1-14.

MR. BROOKMAN: And again, you're speaking on behalf of AHAM?

MS. CLEARY: Yes.

MR. BROOKMAN: And would you – the first list, I know some individuals were writing furiously as you – the first list, read the list again.

MS. CLEARY: Sure. 1-18, 3-2, 3-3, 5-1, 5-3, and 5-4. And we'll comment on that throughout the rest –

MR. BROOKMAN: Very good. That's a start. Okay. Good. Thank you. Other comments here at the outset? Nothing additional. Okay. So then let's go to then the presentation slides. And we're going to hear from Lucas.

Regulatory History Overview

MR. ADIN: Good morning, everyone. My name is Lucas Adin. For those of you who don't know me, I'm the product manager for residential refrigeration products in DOE's Appliance Standards Program. And

I'm the general point of contact for these products, so whether you have questions today or after today, I'm the person that you can ask. My email address is on this first slide, but then it's also on the very last slide and my phone number as well, so if you have questions after today, feel free to contact me.

Sorry, a minor technical difficulty here. Okay. We're in business, sorry about that.

So just a few brief items. Actually we've gone through most of this already. The meeting agenda, Doug essentially went through those items already. We've done some brief introductions, yes, we did go around the table already, so you're the facilitator, Doug, I didn't know if there were any particular items you wanted to mention at this point. Okay. I think we're good.

Ground rules, we've already gone over essentially all those items, so –

MR. BROOKMAN: We've done that.

MR. ADIN: We've done that. Okay. The purpose of today's meeting, this is the framework meeting for residential wine chillers and miscellaneous refrigeration products. So the purpose of today's meeting is essentially to present the analytical process that DOE would go through in the

course of evaluating potential energy conservation standards for these products, determining what products, specifically to cover and setting test procedures for them.

I should point out that DOE is not actually proposing anything today. What we are doing is laying out our process and a basic overview of DOE's understanding of these products as of today, our understanding of the market, of the technical features of these products and presenting a number of items that we wish to collect more information about. So it's both about how much do we know and how much we wish to know more about.

So along those lines we also are looking for comments. There some specific items that we'll be asking for comment on and we also encourage participants in today's meeting to ask questions or make comments about any items you think we might be on the wrong track about or that you think we might be able to lend some more insight on.

So with regards to comments, you'll see throughout the presentation today and throughout the framework document itself, there are a number of items on which DOE specifically requests comment, and those are indicated by these comment boxes, and they are

identified by a number, so that helps us keep track of what you're commenting on. So when you submit your comments, please make sure to refer to them by the number that's indicated in the document. I think that's about all there is to say on that.

So with that, I will go on to a very brief overview of the regulatory history. The authority that the DOE has to set energy conservation standards for residential and some commercial equipment was established by the Energy Policy and Conservation Act of 1975, which put into place the energy conservation program for appliances and commercial equipment. DOE didn't actually put into effect standards for residential refrigerators at that time, although DOE did establish test procedures shortly after.

The first energy efficiency standards for residential refrigerators actually came into effect at the federal level with the National Appliance Energy Conservation Act of 1987, and those standards went into effect in 1990, and then that Act also required DOE to conduct rulemaking to determine if more stringent standards were justified, which DOE did, and those standards went into effect in 1993, and then a subsequent rulemaking with a final rule published in 1997 put in the standards that went into effect in

2001. Those are the standards that are currently in effect for residential refrigeration products. And finally, the Energy Independence and Security Act of 2007 required DOE to conduct another rulemaking to determine standards that would go into effect in 2014. That rule was just published this past September. As you can see at the bottom of the slide and those standards, the compliance date for those is September 15, 2014.

Now the standards that are currently in effect do not address wine chillers and smaller refrigeration products. DOE, through a rulemaking, a final rule published in 2001, modified the definition of a refrigerator and refrigerator-freezer to essentially cut off the coverage of these products at 39 degrees, so products that operate warmer than that are not covered under the present standards. So this rulemaking would address products that fall into that category, and so DOE would have to write standards specific to those types of products, and that’s what this rulemaking will address.

So with that we get into some more specific issues related to the scope of coverage, and I will turn this presentation over to Detlef Westphalen from Navigant Consulting who will discuss scope of

coverage.

Scope of Coverage

MR. WESTPHALEN: Thanks, Lucas. So EPCA provides some scope-related criteria in its description of refrigeration products that are covered, specifically excluding those designed solely for use in recreational vehicles and other mobile equipment and this particular section, 6292(A)(1), addresses refrigerators and it has some scope-related criteria such as they can be operated on alternating current electricity and the coverage scope excludes types designed to be used without doors, and also any type which does not include a compressor and condenser as an integral part of the cabinet assembly.

Now, through its initial stages, thinking about consideration of wine chiller rulemaking, DOE essentially went through the thought process of, okay, what kind of authority does DOE have and concluded that it has the authority to modify the current refrigerator definition which is in 10CFR430.2, to include wine chillers and similar products. This authority, however, does not cover products that don’t use the compressor and condenser as an integral part of the cabinet assembly as required by the EPCA provision. Specifically, some of the products that

were identified in some of the preliminary investigation were thermoelectric wine chillers, and also absorption wine chillers.

DOE does have the authority to extend coverage to new products, and simply establishing coverage over new products requires that these products have a minimal annual per household energy use of 100 kilowatt hours.

To further set an energy efficiency standard for a newly covered product, there are two key criteria:

- The first is higher annual kilowatt hour usage bar, at 150 kilowatt hours;
- National annual energy use of 4.2 billion kilowatt hours.

So if the national energy use does not exceed the 4.2 billion, DOE would be authorized to establish coverage but not efficiency standards potentially, for these other types of products, the thermaoelectric and the absorption type of wine chillers. And coverage alone, without setting a national standard would obviously preempt the state standards, for instance, the California standard for wine chillers, which does cover the thermoelectric and other types of products.

Also regarding the thermoelectric and absorption, you may be aware that DOE published proposed coverage determination on November 8th, essentially starting to set the stage and start the discussion on this particular topic.

I referred to California standards. There are existing state and foreign standards, particularly California and Canada. The regulations for these entities address two product classes, automatic defrost wine chillers and manual defrost wine chillers, and the California standards don't make a distinction with regard to the technology used, for instance, thermoelectric, vapor compression, et cetera.

This last statement here was true when the initial investigation was conducted, that DOE was not able to identify any thermoelectric wine chillers in the CEC database, leading us to believe that either these units did not meet the standards or that manufacturers aren't aware that they're covered. However, more recently, a few thermoelectric products have been identified on the CEC list.

So now we get into scope. I'm going to be presenting on scope of coverage. I'll also be, after the break, talking about the rulemaking overview and

also test procedures, but why don't we move forward with the scope discussion.

As mentioned, EPCA has some requirements for what criteria need to be met for DOE to establish coverage, and so DOE considered these options listed here which fit into the framework of the authority. The first option being to establish coverage and standards for vapor compression wine chillers through the existing authority for residential refrigeration products by changing some of the definitions in 430.2. Then, obviously, some sub-options within this option to be either to pursue coverage of the alternative technology products or not to. The other option DOE considered was to lump all the wine chillers into one new category and try to establish new coverage for those products. At this point DOE is tentatively considering option 1A, and I mentioned the proposed coverage determination for the alternative technology products previously.

So at this point we have our first request for comment, and it addresses two key issues here, number one, would there be any other options that DOE has? Obviously, one would be not to pursue any kind of coverage at all, but are there any other positive coverage options that DOE has and what are the

comments or feedback with regard to the option 1A?

MR. BROOKMAN: Please introduce yourself.

MR. WIENER: Jon Wiener with Earth justice.

MR. BROOKMAN: Did you turn the microphone on? Yes, thank you. Jon.

MR. WIENER: We had some concerns about DOE's conclusion or perhaps tentative conclusion that it did not have authority to include vapor compression wine chillers in a new category, if it was going to extend coverage to thermoelectric wine chillers, that it could not include vapor compression wine chillers in that product category. Is that still DOE's – am I accurately conveying that decision?

MR. WESTPHALEN: Maybe I didn't make things clear. DOE does have the authority to establish new product categories, and they could establish a new product category that includes thermoelectric and absorption wine chillers.

MR. WIENER: And vapor compression wine chillers? I believe the framework document said that vapor compression wine chillers could not be included in a new product category because they're already covered products under EPCA.

MR. WESTPHALEN: DOE felt that because the EPCA authority for residential refrigeration products,

refrigerators, refrigerator-freezers, and freezers, already can be extended to cover vapor compression wine chillers, that it wouldn't be appropriate to pull those out of that authority and put them into authority for a new product.

MR. WIENER: Well, we – we disagree with that assessment. We think that the Department does have authority to do that because the framework document said those products are already covered, whether or not DOE has authority to extend coverage to them by changing the regulatory definition of refrigerator, the definition of refrigerator currently does not cover those products. They're not refrigerators as far as either the regulation or the statute is concerned, because the regulation construes the statutory term refrigerator, therefore they're not covered right now, and I think the Department could go either way with it, and our perspective is that if it helps the Department make the determination that national energy consumption for all wine chillers meets the 4.2 billion threshold, then we'd prefer that DOE consider including vapor compression wine chillers along with other types of wine chillers in a new product category.

MR. WESTPHALEN: Okay. That was essentially

option 2, that DOE entertain the possibility of lumping them all together because if you used thermoelectric and absorption, maybe you only get to three billion kilowatt hours, and then if you add the vapor compression, maybe you get to 4.2. I guess that's the point of your comment.

MR. WIENER: Yes, and we – I just want to be clear that we think the Department has the legal authority to do that.

MR. BROOKMAN: So, Jon, you are relatively new to these proceedings –

MR. WIENER: Yes.

MR. BROOKMAN: So the Department would really like to see that in great detail in writing, of course.

MR. WIENER: We're happy to provide that.

MR. BROOKMAN: Yes, thank you. Charlie.

MR. HON: I have a simple question. You keep making reference to alternating current systems. The danger of that statement can be very serious, because thermoelectrics inherently, by their nature, are DC current items. They have to put in a sensor or transformer to convert AC to DC, but you could potentially exclude products by hooking a battery system through them and charging a battery and then

running the battery into that, which is common in sump pumps and items like that, and thereby exclude products from the coverage.

MR. KIDO: Just a real quick follow up question to that –

MR. BROOKMAN: Michael Kido.

MR. KIDO: -- does that mean that those products are operating off of something like a lead acid battery, or are they being – are they plugged into AC mains?

MR. HON: They can operate off a battery, which is common in the transport cooler systems, which run off the car battery. But you could be charging a battery and then feeding the battery as your power source, and making a DC system which then would be excluded from the standard.

MR. BROOKMAN: Lucas.

MR. ADIN: Just as a point of clarification. This is actually an issue we're going to get to a little bit later in the presentation. But DOE does have the authority to potentially include those products if it so chooses, it's just a matter of redefining its regulatory coverage, but that's something we'll discuss a little bit later. Thanks.

MR. BROOKMAN: Joanna.

MS. MAUER: Joanna Mauer. So in any potential determination of coverage, either with option 1A, just focusing – either option 1A or option 2, we'd encourage DOE, in addition to the thermoelectric and absorption products, to also consider additional products such as thermoelectric compact refrigerators and refrigerators that use vapor compression refrigeration system, but where the compressor and condenser are not integral to the cabinet, so just to consider to those products in addition to the thermoelectric and absorption wine chillers.

MR. BROOKMAN: Thank you. So you see the comment box, and so additional comments on the coverage options? Anything else?

MR. WESTPHALEN: We have some additional requests here, more requests for data and information, perhaps more appropriately for written comments. First of all, DOE requests shipment information from stakeholders for wine chillers and related refrigeration products with segregation of the data, if possible, to help us understand what types of products are involved. Also DOE requests energy use data for wine chillers and related refrigeration products, and this less to the vapor compression

products for which the CEC and Canadian databases have good information, but it applies more to the other products, other technologies, such as thermoelectric and absorption.

MR. BROOKMAN: We're just going to leave these comment boxes there for a moment so you can read through it. No comments at this time. Okay.

MR. WESTPHALEN: Okay. We have one slide here which provides a series of definitions. I'm not going to go through and explain each – this is just sort of to set the groundwork of the discussion for this presentation. But if anybody has any questions about what we have here, certainly feel free to ask.

Definition for wine chiller. DOE is considering adopting the following definition for wine chiller. Very similar to the definition for refrigerator – electric refrigerator. "A cabinet designed for the refrigerated storage of beverages, non-perishable foods, and/or any other items. Not designed to be capable of achieving storage temperatures below 39, and having associated refrigeration requiring single phase AC electric energy input."

Then also, the definition for refrigerator would be modified to include both electric

refrigerator and electric wine chiller. We also have a point here that DOE considered whether wine chillers is the appropriate term for these products, you know, since there may be other products such as beverage coolers and such products, and the term wine chiller may be a little bit misleading, focusing people to think just about wine chillers, i.e., products for the storage of wine.

MR. BROOKMAN: So I didn't think you were quite finished. You were close on this slide.

MR. WESTPHALEN: I think I was finished with this slide, the third bullet just addresses whether wine chiller is the appropriate term for these products.

MR. BROOKMAN: Yes, I thought I saw a few grimaces around the room. Yes. Is it Bill?

MR. BROWN: Yes, this is Bill Brown, GE Appliances and Lighting. If you're going to include all products that are above 39 degrees, wine chiller is not the proper term to use any more. Now you've got wine chillers, you've got what they call in the industry, the beverage centers, so it's basically you've got two sets of products, those that can achieve 39 degrees and below, and those that cannot. So if you had a term that more accurately said that,

if I'm thinking wine chiller, I'm still thinking the Canadian definition, design and marketed exclusively for the storage of wine, and obviously this is not the type of product you're going after here.

MR. BROOKMAN: And so you would recommend another term which would be?

MR. BROWN: Another term, I don't know – warmer than 39 degree refrigerators. You've got less than or equal to 39, and greater than 39.

MR. BROOKMAN: My short term memory is still working and you said beverage centers a few moments ago –

MR. BROWN: That's what we call them in the industry, a beverage center, so basically what you see in the industry today, you see like a glass door appliance that looks like a refrigerator. It just can't get below 39.

MR. BROOKMAN: Okay. Other comments on this definition stuff here? So we also want to encourage wide participation, we have a question or a comment from Patrick Murphy, the director of testing and training at the Refrigeration Service Engineers Society. Patrick, you're on the line.

MR. MURPHY: Is that better?

MR. BROOKMAN: That's okay.

MR. MURPHY: The SNAP program just approved new refrigerants...

MR. WESTPHALEN: Yes.

MR. MURPHY: Can you hear me?

MR. BROOKMAN: We can hear you, yes.

MR. MURPHY: The SNAP program just approved new refrigerants - propane, isobutene, blends - and I'm wondering if that's something considered in these standards – they're all more efficient.

MR. WESTPHALEN: Yes, that might be true, that's a topic for the engineering or the technology assessment in identifying the potential technologies that could improve efficiency. Most of those new refrigerants would be used in products that have vapor compression refrigeration systems, so whether they use HFC, 134A, or isobutane or what have you, they would still be considered vapor compression products.

MR. BROOKMAN: But in any event we'll be picking that up later?

MR. WESTPHALEN: We'll be picking that up later, yes.

MR. BROOKMAN: We'll save it for later.

MR. MURPHY: Thank you.

MR. BROOKMAN: Thank you, Patrick. Okay. Any other comments in this definition segment because

we're about to move on? Okay.

MR. WESTPHALEN: Okay. Now also related to definitions, DOE is considering modifying the definition of compact products to specifically include compact wine chillers, because most of these products are within the compact range, and DOE is considering this in order to make clear that they're not separate, standard size and compact size wine chillers or whatever term will be used to cover the warmer than 39 products.

So now we have requests for comments about all of these definitional items. I think we already talked about the request for comment on the suggested definition for wine chiller, however, we're also requesting comment on the modified definitions for refrigerator and compact products.

MR. BROOKMAN: Questions and comments here. Bill. Pardon me, Jon.

MR. WIENER: Jon Wiener from Earthjustice. Our concern, again, is that the definition be written broadly enough so that it doesn't exclude too many products, including some of the products that Joanna mentioned earlier. Several electric refrigerator-freezers that maybe do get down below 39 degrees, but are excluded from the statutory definition of

refrigerator-freezer, or other types of refrigerators that might be excluded either by the statute, or might not be covered under the current regulatory definition. Obviously, that'll depend on how many products you decide to group together in the final analysis.

MR. BROOKMAN: Okay. Thank you. Additional comments on these two comment boxes, 1-4, 1-5, modified definitions? Also product category-related comments.

MR. WESTPHALEN: The request 1-5 addresses the issue that we already alluded to regarding a new term that might include wine chillers and the beverage centers. You know, one part of this request for comment is whether anybody has any specific terms that they think would be good for that, and certainly we welcome any suggestions.

MR. BROOKMAN: Nothing's emerged on the industry side, then? Amanda. Pardon me, Jen.

MS. CLEARY: Jen from AHAM. We may have some suggestions on the definition but we're still working on the specifics, so we'll provide them in our written comments.

MR. BROOKMAN: Thank you. Okay. Then nothing additional?

MR. WESTPHALEN: Now we move on from the wine chillers to hybrid products. As some of you are aware, during the refrigerator rulemakings, DOE became aware of products that include wine storage with fresh food compartments, or fruit compartments, or freezer compartments, and initially there was some confusion about coverage of these products. About a year ago, DOE published a guidance document clarifying its position. In that document, DOE acknowledged that there's still some outstanding issues in regard to that understanding of hybrid products, and that it's considering a rulemaking to address them, and so potentially, this would be that rulemaking.

So, this slide lays out a potential framework for addressing the hybrid products. Potentially, DOE would establish a certain threshold size for a wine storage compartment within a conventional refrigeration product, you know, at which point the particular product would no longer be a refrigerator, refrigerator-freezer, or freezer, and would instead be a hybrid product or whatever term would be used to define these. Then there would be definitions established for these hybrid products.

And then test procedures would be developed for those products that remain within the

refrigerator, refrigerator-freezer and freezer categories, to clarify what one does when testing such products with the wine storage compartment. Test procedures and standard would then potentially be developed also for the hybrid products.

So first, DOE requests general comments on this draft framework for addressing products that include the wine storage compartments with fresh food or freezer compartments.

MR. BROOKMAN: Comments? Jen.

MS. CLEARY: Jen from AHAM. Yeah, I think we've commented on this before on the guidance but, you know, our opinion is that the approach that DOE's guidance took and in the final rule is inequitable with regard to hybrid products, as it's arbitrary to treat, that freezers and wine chillers are not covered, but refrigerators and refrigerator-freezers with wine chillers are covered. And even DOE has recognized this disparity of treating these products that way, and the result is that the guidance and the final rule unfairly incorporated the products into regulation without an appropriate rulemaking to address them. This is further demonstrated by the fact that these issues are now being addressed, when we've already got these products essentially covered

but there are no test procedures, no definitions, et cetera, so we're very concerned about that situation. And our concern that DOE is now attempting to fill the holes that it left in its previous rulemaking with this one, you know, all wine chillers, including the hybrid products, should be addressed during this rulemaking, including the coverage of those products. And I think our question for the General Counsel's office is, you know, how was this evaluated, just in terms of the APA, for example, the fact that these are covered in the previous rulemaking and now really, the technical details that need to exist and be dealt with are only being handled now.

MR. BROOKMAN: Michael Kido.

MR. KIDO: Michael Kido. I'm not going to comment in any detail on that, but I think it's fair to say that DOE does recognize that there are some limitations to the approach that was laid out in the February 2011 guidance, and I think that, as you observed, this effort, assuming that we do go to rulemaking on it, would be an attempt to try to more comprehensively address those types of products. So, as a practical matter, with respect to the definitions that are already in place, the way that those definitions are set out in the regulations, I think we

explained in the guidance as well as the final rule notice, what our rationale was for the difference in treatment. So we're already on the record as to our position on that matter.

MR. BROOKMAN: Thank you. Jen.

MS. CLEARY: Thank you. That's all.

MR. BROOKMAN: Joanna.

MS. MAUER: Joanna Mauer. I think we would encourage the Department to set standards that are similar in stringency across some of these product types, taking into account that the measured energy use of the hybrid product will be different than the measured energy use of a refrigerator without a wine storage compartment, and it looks like this draft framework allows the Department to do that, to account for the specific characteristics of some of these products.

MR. BROOKMAN: Okay. Additional comments?

MR. WESTPHALEN: So additional requests for comments and information. DOE seeks information regarding the types and configurations of the products that might need to be considered under this framework described for hybrid products, including examples showing product details and information on annual shipments associated with such products. We should

say that DOE has published a document listing the results of some of its research into which hybrid products are on sale in the U.S. market, and that's actually in the docket for the refrigerator test procedure rulemaking, and that's something that maybe we should make available to people so that, you know, as they respond to this question in written comments, they don't duplicate the list, but rather add to it.

MR. BROOKMAN: It isn't available now?

MR. WESTPHALEN: It is available now. It is in the refrigerator test procedure rulemaking docket– I just don't have the link to it handy here at the moment. Maybe we could try to find that and provide it after lunch or something.

MR. BROOKMAN: And did you address 1-9?

MR. WESTPHALEN: I didn't get to all of these here. 1-8 addresses whether there should be a threshold size or percentage of total volume, which then pushes a product into the hybrid category, and what should that be? How should it be set up? And then DOE seeks comment on what kinds of test procedure revisions would be required to address these products, whether they remain within the current definitions or get pushed into the future hybrid categories.

MR. BROOKMAN: We've already had some

discussion on different types of – different configurations and types that would be included in the hybrid category. Additional comments on these three boxes? Jon.

MR. WIENER: Thanks. Jon Weiner, Earthjustice. Is DOE considering hybrid products as a sub-category of refrigerators? Am I understanding that, or would this be a sub-category of whatever new product category, or whatever we would call the new product category?

MR. WESTPHALEN: The products with, if you will, small wine storage compartments that remain under the definitions for refrigerator or refrigerator-freezer, obviously would still be covered under the existing authority and regulations. The products that then push into a hybrid category, you know, it would be up to DOE to decide whether, okay, should those be lumped in with a new product category including all wine chillers, or – because of the typical characteristics of the products that DOE has identified that fit this hybrid definition, they should be coverable under the EPCA authority, so that DOE could set up definitions within 430.2 to extend coverage to them. But it’s not clear at this point what will be done.

MR. WIENER: You mean because they normally have compressors?

MR. WESTPHALEN: They have compression systems, they have doors that close, they run on AC electricity, yeah.

MR. WIENER: Well, I'll make sure to put this in written comments, but just to repeat myself, we do believe that DOE has the authority to put that subcategory into – or count those products towards the national energy consumption for a new product category as well.

MR. WESTPHALEN: Okay.

MR. WIENER: They don't have to be refrigerators or refrigerator-freezers.

MR. BROOKMAN: Okay. Thank you. So several comment boxes here. Additional comments on threshold size or percentage of total volume? Types of hybrid product categories? And also test procedure revisions. Nothing additional.

MR. WESTPHALEN: Okay. Item 1-10 specifically addresses whether this action here should incorporate these hybrid products into our rulemaking. Really, a very specific question, and then Item 1-19, specifically asks for comment on the compartments themselves, you know, whether they be wine storage

compartments, maybe they should have a different term. The Australian/New Zealand test procedure, for instance, calls these something like cellar compartments. What the request for comment there asks for information regarding definition and characteristics of these warmer temperature compartments.

MR. BROOKMAN: No strong feelings about this yet. Okay. Joanna.

MS. MAUER: Joanna Mauer, just I think it makes sense to include hybrid products as part of this rulemaking. I don’t know much about this market, but I would guess that these products may become more common in the future, so it makes sense to adjust them and develop appropriate test procedures and standards for these products.

MR. BROOKMAN: Additional comments?

MR. WESTPHALEN: Okay. So here we sort of extend the scope of view to think about other types of residential refrigeration products that haven’t been discussed already and have not yet been covered. The framework document gets into some details on these, for example, residential ice makers, and so-called near-freezers. And so DOE requests comment on whether any other residential refrigeration products that

should be considered as part of a potential rulemaking as we move forward here.

MR. BROOKMAN: You see the comment box – yes, Jon.

MR. WIENER: John Wiener again. Just want to repeat something Joanna mentioned earlier. The one product that I noticed that wasn't mentioned in the framework document was a product that AHAM and Earthjustice submitted comments on in response to the proposed determination, and those are refrigerators that have compressors and condensers and fit all the definitions of the regulatory and statutory – all the provisions of the statutory and regulatory definitions except the compressor is located on top of the unit instead of as a part of the cabinet, and it's removable. I don't know if there's a neat way of writing a definition of whatever new product category, whatever we're going to call it, that incorporates both wine chillers and those products, but it's something that we would like the Department to pay attention to, because we think it's a loophole in the current regulatory scheme.

MR. BROOKMAN: Thanks.

MR. BROWN: Bill Brown with GE. I would have a question of why would that product would not be

covered today. I don't see anything in the standards thing that it has to be permanently attached to the refrigerator, be part of the cabinet. I do know that in the ISO documents for international refrigeration, that in order for it to be covered in Europe it has to be built in a factory. It can't be pieced together in someone's home. Do not see that for the U.S.

MR. KIDO: Michael Kido, DOE. My understanding of –

MR. BROOKMAN: Michael, get close to the microphone, please.

MR. KIDO: My understanding of Jon's comment, though, refers to a product where the compressor is not integral to the cabinet, is that right?

MR. WIENER: Yeah.

MR. KIDO: Right. So if that's the case, under the statutory definition that we're currently dealing with, with that particular product, there's some question as to whether that would actually be within our scope of coverage right now. That's something we can add later on as part of that coverage rulemaking that we've got going on, but right now that doesn't seem to be something that's within the scope of coverage that EPCA sets out for us.

MR. BROOKMAN: Bill.

MR. BROWN: You said two things there. You said you weren't sure, and then you said it was not covered. So which is it? Is it you're definitely 100 percent sure this is not a covered product, or you're still determining whether it's a covered product?

MR. KIDO: Michael Kido. My understanding is, if this particular product has a compressor that's not integral to the cabinet assembly, which is one of the key components of the scope of coverage that's laid out in statute, we don't have coverage under that provision. With respect to our ability to extend coverage as a part of the separate coverage determination that we've got going on, we could get coverage that way.

I guess to put it in another way, our authority does not extend coverage to products in which the compressor and condenser are not an integral part of the cabinet assembly. And the question to be answered is what does it mean to be an integral part of the cabinet assembly. And that issue has not been definitively decided.

MR. BROOKMAN: So that would be commentary that would be useful for the Department. Charlie.

MR. HON: Charlie Hon. This is something

that's been in the commercial end of the business for a long time. Basically, it is designed so that the unit can be serviced without pulling the entire box out, just bring in a different compressor deck, drop it on, a couple snap-on connectors and you're done. And it's starting to trickle toward the residential market, it looks like, but it's never been considered as separate units in the commercial end of the business. But there have been a few people that have tried to make a common footprint which would allow a much larger compressor to be dropped in place, thereby modifying the unit, the internal volume ratio, which could be a problem in the regulatory state, which would be field modification. But there are also companies who are proposing that decks be sold separately to boxes, and then paired in the field. And then you end up with a regulatory nightmare.

MR. KIDO: Michael Kido, DOE. Just to follow up then. So are you saying then that these particular products would have the compressor part of what you would ordinarily consider to be part of the, I guess, the cabinet?

MR. BROOKMAN: Or the enclosure?

MR. KIDO: Or the enclosure of the whole product? Because I guess that's sort of – that

presents sort of, I guess, a different question because we're not exactly – I don't know, I don't think we've come up with a final determination as to what the cabinet actually composes – is composed of. Because if it's part of the enclosure, I suppose it could be an argument that could be part of the cabinet itself.

MR. ADIN: Lucas Adin, DOE. Related to that is another question. Could the compressor, and I suppose the condenser as well, as a component, be located separately from the box? I mean that would effectively make it a remote condensing type of product, but is it required that units of this type actually have that compressor-condenser component physically attached to the box or could it actually be located remotely?

MR. HON: It could technically –

MR. BROOKMAN: Charlie.

MR. HON: Charlie Hon. It could technically be remote. There are very high end installations where customer refrigeration is done where people do not wish to hear the noise going on in the compressor activity, in which case it's a very expensive installation, and very, very, very rare to see such a beast ever built. Because effectively you're

building a pure custom unit.

MR. BROOKMAN: It's a custom piece.

MR. HON: Yes. The other part of the beast is, in the commercial end, it is quite common to sell a unit where you snap on a deck which includes compressor, evaporator and condenser, and fan. So you just literally unplug it from the junction box, two or three screws, lift it off. The box maintains as is, put a different compressor deck in place, and it's ready to go. There are customers who ask for boxes alone, and would like to have a common deck crossing multiple product lines which they can then screw on as they feel the need. That could allow for major differences in compressor horsepower.

MR. BROOKMAN: Is that a common application? That plug-on to the top of the box?

MR. HON: It is becoming more common every day. Five years ago, it was non-existent.

MR. BROOKMAN: We'll let Michael Kido follow up.

MR. KIDO: Just a real quick question. Now you said those types of applications are becoming more and more common. Are they more common in the commercial context, or are they becoming more common in the residential complex?

MR. HON: At this time I've not seen them in the residential, but the technology is well known.

MR. BROOKMAN: Bill, you want to –

MR. BROWN: No, no question.

MR. BROOKMAN: Okay. Thank you. That was good. That was useful. Joanna.

MS. MAUER: Joanna Mauer. So you mentioned thermoelectric compact refrigerators before, and I know DOE has raised a concern with wine chillers, but if there are only standards on vapor compression products and not thermoelectric products then there could potentially be a market shift from the vapor compression to thermoelectric products and it seems like there could be a similar concern in the compact refrigerator market. So we'd encourage DOE to include thermoelectric compact refrigerators in any determination of coverage.

MR. BROOKMAN: Jen.

MS. CLEARY: We would reiterate our comment from the opening statement that DOE should be refocusing its priorities, you know, not addressing products that have little opportunity for energy savings when there are more pressing matters before the Department.

MR. BROOKMAN: Thank you. Additional

comments on 1-13? Okay.

MR. WESTPHALEN: We have additional requests for information on the same theme, you know, for shipment data or energy use data for these other types of equipment, and I don't know if we need to dwell on these requests for comment, just know that DOE requests comment on – or requests information, rather, and data if it is available to allow the Department to properly assess the potential for energy savings and make an informed decision regarding pursuit of coverage of these other product categories.

MR. BROOKMAN: Does the Department know, has AHAM collected this data, for example?

MR. WESTPHALEN: DOE does not know whether AHAM collects any of this data for any of these niche products. It's possible that manufacturers have some understanding of the size of the market and could provide that information. Any such information, obviously, is better than none.

MR. BROOKMAN: So, I'm not going to linger on these very long, unless we get some interest here. Michael? Michael Kido.

MR. KIDO: I'll just throw that question out there, does anyone know of any sources that we could use to get that kind of information?

MR. BROOKMAN: No knowledge of it at this time. Okay.

MR. WESTPHALEN: Okay.

MR. BROOKMAN: Joanna, please.

MS. MAUER: Joanna Mauer. Can I just ask a quick question about the near-freezers? I think DOE outlined a couple of potential options for addressing these products. Was one of the options to amend the definition for freezer without changing the test procedure?

MR. WESTPHALEN: Because the definition for freezer in 430.2, DOE presumably had the option to change those definitions to extend coverage to these so-called near freezer products. Then, as you point out, then the issue becomes well, is the current test procedure for freezers appropriate for these products, and DOE may then have to consider test procedure modifications to address them, and also, you know, develop guidelines for how the existing energy standards might apply to them.

MS. MAUER: Okay. Thank you.

MR. BROOKMAN: Bill.

MR. BROWN: This is Bill from GE. AHAM does have comments on how you can use the existing test procedure for a near-freezer, and we will be providing

those in our comments, and one possibility would be use the current test procedure and instead of interpolating to zero degrees, you extrapolate to zero degrees. So you'd still be comparing the products that are called freezers using the same test procedure without any change in the definition of the test procedure at zero degrees, you could still use the same equations, you still got a straight line between two points, you just extrapolate to zero instead of interpolating.

MR. BROOKMAN: And so your thinking is, or AHAM's thinking is that that will be sufficient?

MR. BROWN: Yes.

MR. BROOKMAN: Thank you. Joanna.

MS. MAUER: Joanna Mauer. Is that a specific utility of these kinds of products? Are they currently on the market?

MR. BROWN: I would say that GE does not have any of these products. We were not aware of these products existing, certainly see how someone could design a product that does not get to zero degrees.

MR. BROOKMAN: I notice that Jen just stepped out of the room for a moment, so maybe there is some additional comment to be made there? Not at

this moment. Any more comments on this segment? Okay. Charlie.

MR. HON: One question. Near-freezer is a pretty broad statement. One product that does exist in the market is that people like really cold beer, below the standard refrigerator category, but certainly not to the freezer category, but definitely would be below any standard which would be allowable for a refrigerator. Is that going to fall into the near-freezer?

MR. WESTPHALEN: We don't know for sure. One might consider that near-freezers would have temperatures up to 20, and maybe above 20 would be like a high performance refrigerator or something. But obviously, at this point, our understanding and how many of these products is actually shipped is somewhat limited and we don't really know if it makes sense to pursue all of this.

MR. BROOKMAN: Charlie Hon.

MR. HON: The term freezer, I assume, is read generally accepted as freezing water, below 32 degrees, and alcoholic beverages have a much lower freeze point than that. So that's why I'm confused.

MR. BROOKMAN: You don't have these definitions established at this point?

MR. WESTPHALEN: No. I mean, near-freezer was discussed in the framework document without any specific guidance for what the temperature level is, and the topic was raised in the framework in response to comments received from one of the stakeholders during the refrigerator test procedure rulemaking last year or the year before, indicating that, you know, the zero Fahrenheit bar would potentially cause some of these products to be non-covered. And so the stakeholder felt that we shouldn't let them get away with it just because they can't meet zero Fahrenheit.

MR. BROOKMAN: Charlie.

MR. HON: Charlie Hon. This has been addressed recently in final rulemaking from the DOE covering commercial refrigeration. Basically the rule of thumb was there's several products involved, wine chillers were some of those products, basically, that did not get to the 38 plus or minus two standard, and ice vending or ice storage machinery, which was in the mid-twenties was also considered. But basically the rule of thumb at that point was DOE said turn the unit as cold as it can go and report as a variance on the standard, but document what you did.

MR. BROOKMAN: What are these units designed to do? Do you know?

MR. HON: Depends on the units. Wine chillers, depending on what type of wine you're trying to hold, could be 45 degrees, 55 degrees, 58 degrees. Ice storage is generally done between 22 and 30 degrees Fahrenheit for commercial purchased ice, bags of ice. Beer units in the commercial end, there are beer units which run at 27, 28 degrees Fahrenheit, because bars want to sell really cold beer. But if they go put their light beers in there, they quite often break the bottles. So there's a problem with them.

MR. BROOKMAN: I think maybe we should maybe at lunch do some taste-testing here.

MR. BROWN: In the refrigerator-freezer definition, when you look at what is a compartment, what is a fresh food compartment, what is a freezer compartment, for fresh food, it's anything above eight degrees Fahrenheit. So that's not – again, just for your own refrigerators between 32 and 39, but if you look at just individual compartments, anything above eight degrees is considered fresh food, so when you calculate the volume of that compartment it goes into the fresh food bin, anything below eight is a freezer. For example, the bottom freezers that have the ice on the door in the fresh food compartment, that is in the

20 degree range when you're storing ice, and that's considered to be a fresh food compartment. So just one more thing to consider when you're looking at what is a near-freezer. You've already got definitions of what is a fresh food for a compartment, possibly you can use that or build on that to come up with what a near-freezer would be in this definition.

MR. BROOKMAN: Where is that definition?

MR. HON: You can see that in the AHAM HRF-1, which 10 CFR 430 points to as far as how to calculate the volumes.

MR. BROOKMAN: Okay. Thank you. Lucas Adin has a question from someone on line.

MR. ADIN: This was actually just a comment. This was from Steve Church at Whirlpool in regard to Item 1-14, residential ice makers. His comment was, "The intent of Congress with EPCA was not to restrict these products. A very small number of these products are sold each year, and regulating these products will have almost no impact on reducing energy consumption."

MR. BROOKMAN: Okay. Thanks. Additional comments relative to these two comment boxes? Bill, go ahead.

MR. BROWN: One other example from 1-14, residential ice makers, California does regulate ice

makers that make above 50 pounds per day, so those do exist – regulations do exist for that type of product, but below 50 pounds a day, there is no regulation.

MR. BROOKMAN: Okay. Thank you. Yes.

MR. ADIN: Sorry, this is Lucas Adin, DOE. Just a quick question on that. Is that specific to residential ice makers or is it commercial or do they distinguish?

MR. BROWN: I'm not sure. We don't have that product.

MR. BROOKMAN: Charlie?

MR. HON: Charlie Hon. I don't deal in that product, but I happen to know the regulations because there are some questions brought up in some other meetings. The regulations do not specify application. They specify less than 50 pounds of ice generated per 24 hour period, or they specify a regulated product, which is 50 pounds to 2500 pounds of ice generated within a 24 hour period. After that it's considered an industrialized factory, and no longer regulated under the same standard.

MR. BROOKMAN: So it's only volume.

MR. HON: How much you can produce in a day.

MR. WESTPHALEN: The ceiling on that capacity range has been lifted to 4000 pounds per day

as part of the commercial ice maker rulemaking recently.

MR. BROOKMAN: Thank you. So I guess we're moving on now.

MR. WESTPHALEN: One – I think this is the last topic under scope, has to do with the residential/commercial split and this is a question that has come up recently in rulemakings in regard to when is a product a commercial product versus a consumer product. And I'm not going to try to quote the EPCA guidelines on that, but DOE is aware of several attributes that could distinguish commercial types of wine chillers from residential types, but would like additional information to allow it to definitively conclude if that is the appropriate decision that wine chillers with uniquely commercial features exist.

So we have requests for comments on this theme, DOE seeks comment on what design and performance characteristics distinguish the wine chillers used in commercial applications, whether any of these wine chillers are manufactured on the same product lines as residential wine chillers and whether, to any extent, commercial wine chillers are distributed in commerce for personal consumer use.

Obviously, DOE seeks details regarding the magnitude of those sales.

And then, a related, catch-all item, 1-16, DOE seeks comment on whether the commercial and residential wine chillers should be addressed with the same test procedures and energy standards within the same rulemaking.

MR. BROOKMAN: Charlie.

MR. HON: Charlie Hon. Several comments here. Number one, wine chillers, large commercial wine chillers, do trickle into the residential market. Commercial manufacturers like our company try and avoid that at all cost, even though we have no control over the dealers selling the product into the residential market. But due to the way they're designed, they're a disaster in a home because commercial application wine chillers are done on the same commercial refrigeration systems as commercial refrigerators which are, shall we say, noisy at best. If you put them in your home, you probably not want them in your home very long, because they make a lot of noise and it's quite often objectionable in a kitchen environment, when people are sitting around talking and the thing turns on, it makes a lot of racket over the conversation.

It does happen. It is very – it's not common and manufacturers try and avoid it for two reasons, number one is we don't want to get caught in a legal issue, crossing the bounds and not having registered, or our product registered for one market and not the other with the DOE. Secondly, is our field concerns as far as warranty come and customer dissatisfaction are so great that we discourage any sales of our commercial products in the home market.

Secondly, at this time, you've got to be very cognizant that if they go the same standards, these are different applications. If you take a product which is designed for a commercial application, you're assuming that the waiter or waitress or whomever is handling out the wine is in that cabinet on a very consistent basis. If you're in a restaurant, there's going to be bottle after bottle, after bottle being opened, and that wine cabinet is being opened almost continuously. And under commercial design, we design to capture air recovery within the first three to five minutes in a commercial unit. You don't want that kind of air movement in a residential unit because you'll dry out your corks and ruin your wine.

Commercials are designed to move wine in and

move wine out. And they consume a lot more power because that quick recovery and constant air movement, which means you have fans in there moving it all the time. That's so the wine is presentable to the customer on a regular basis during a heavy rush of an all-evening restaurant. And the residentials, that is not the case. Quite often a wine bottle will sit in it for several weeks or months.

MR. BROOKMAN: What happens in the unit– when the restaurant's not open? Is there a different cycle or something?

MR. HON: Oh, it just goes to a totally different cycle, by demand, but your recovery times are totally different. You'd use one-third the horsepower in the compressor in the residential than you would in the commercial.

MR. BROOKMAN: Good. That was helpful. Do you have additional comments related to these two comment boxes, Charlie?

MR. HON: Definitely – this is Charlie Hon again – definitely the commercial penetrating into the home market is very, very low. There's no coverage discussions whatsoever that I've seen and people who are buying what is known as wine cellars for their house, which is a walk-in cabinet, quite often remote

refrigeration systems. And I don't see that being covered or discussed anyplace in this document.

MR. BROOKMAN: Any comments on whether commercial and residential wine chillers – whether commercial and residential wine chillers should be covered under the same test procedures and energy standards? Bill.

MR. BROWN: My comment would be based on his comments that they're two different appliances, and should not be lumped into the same product category.

MR. BROOKMAN: Thank you. Charlie.

MR. HON: Charlie Hon. The commercial standard is ASHRAE 72 which has eight hours of door openings, every ten minutes you open each door. Under normal residential design, your product is gone by that period. You just cannot maintain your temperatures in a residential unit opening it every ten minutes. The test is much more severe for commercial because it is what happens in the real world. And as such, locking them into the same process, I do not believe is a logical thing to do.

MR. BROOKMAN: That detailed comment is very useful, thank you. Lucas.

MR. ADIN: Lucas Adin, DOE. I'm just going to read one more question that came in through the

webinar. This is from Elizabeth Joyce of the California Investor Owned Utilities. And Elizabeth says, “It’s our understanding that DOE is already considering coverage for commercial wine chillers under the ongoing commercial refrigeration rulemaking. Can DOE clarify its scope of coverage here?”

I don’t know that we can offer any specifics today. I think that’s something, at least in regard to this rulemaking, that we’re still trying to figure out. We need more information about it. So unfortunately I can’t offer a specific answer.

MR. WESTPHALEN: Just a clarification question for Charlie. My understanding is that there are no separate test procedures for wine chillers, commercial wine chillers as compared with commercial refrigerators, that it's basically the same test procedure except obviously you can’t reach the same integrated average temperature.

MR. HON: That is part of the recent final ruling that came out within the last month and a half concerning non-standard products in the commercial refrigeration business, where you cannot get it cold enough to run the standard test. They do not differentiate whether they’re wine chillers, because there’s much broader categories in the commercial end.

Wine chillers, or this type of thing, chocolates and flowers are all covered under the same standard, because any of those three products, if you get them to 38 degrees Fahrenheit, you're destroying the product, and as such they're all designed to be much warmer than that, and the units are designed to cover that category. And that's why, in the commercial end, it doesn't say wine chillers. It has avoided that because they don't want to start categorizing and saying, well, this is a wine chillers, or you're applying it for chocolates, or you're applying it for flowers. It is a non-standard refrigerator, because there are more and more product categories appearing all the time to cover, so they didn't want to specify coverage of wine. But chocolates and flowers are the most counted.

MR. WESTPHALEN: Okay.

MR. BROOKMAN: Additional questions or comments? Okay.

MR. WESTPHALEN: I thought the last one was the last one, but maybe this one is, under scope. We talked briefly earlier about products that can operate on both AC and DC electric power. DOE is aware that there are such products. Many of these products are clearly marketed for mobile applications, such as

recreational vehicles, and for that reason they would not be subject to coverage under the EPCA authority.

However, DOE is considering the possibility that there may be significant numbers of these products that are used in stationary applications, so DOE seeks information regarding products that can operate on either AC or DC are distributed to any significant extent to applications where they are used in stationary status. What types of products are there? What annual shipments are there?

And DOE also generally seeks comment on whether it should consider extending coverage to such products.

MR. BROOKMAN: See the comment boxes. No comment. Okay. Well, it's just about 10:30, let's take a coffee break. We've made good progress here, really appreciate the quality and breadth of the comment. It's 10:30. Some of you are fairly new to the Forestall Building, you must wear this badge if you're going to walk around inside the Forestall Building. There are rest rooms on both ends of the hall here. We're on Floor 8, and all the other floors – they're stacked up and down. There's a coffee shop on the ground floor. Take the elevator bank down, and hang a left and just 20 yards up the hallway, there's

a coffee shop. If you're going to get coffee, do it quickly. Sometimes they're stacked up during the coffee break.

We will resume at 10:45 here in this room, and this room will be supervised. You can leave your stuff. So thanks for a good start on the day, we'll resume at 10:45.

(Whereupon, at 10:30 a.m., the meeting was recessed for a 15 minute period.)

MR. BROOKMAN: Okay. So we are, I think, on slide 29 now. Yes? And back to Detlef Westphalen.

Rulemaking Overview

MR. WESTPHALEN: Thanks, Doug. So I'm going to be going over a set of slides here that talk about the rulemaking overview and framework and this general group of slides is in many of the rulemaking presentations so most of you will have seen these before and hopefully we can go through them quickly, but certainly anybody that has questions, whether in the room or on the webinar, certainly ask us. We want to make sure you understand what's going to be happening.

First of all, EPCA lays out seven factors that need to be considered when considering energy conservation standards. These are well discussed in

the statute and the DOE analyses that are conducted, sort of line up to answer questions associated with each of those factors. And I'm not going to get into the detail here. Essentially, the analyses are done to address this EPCA requirement.

Generally, there are four key steps in an energy conservation standard rulemaking process. We're here in the framework stage. The framework document was published recently. We then generally move into preliminary analysis, you know, in which we start to do some of the analyses, understand the technology, do initial estimates of life-cycle costs and national impacts. Then we present that information and have a public meeting similar to what we have here.

Then having that information, we move into the Notice of Proposed Rulemaking stage where some of the analyses are adjusted based on stakeholder comment. Additional analyses are conducted that are required to feed into setting of standards. Candidate standard levels are chosen and specific levels are then proposed as the standards for the products. Then there's another opportunity for stakeholders to comment on those proposed standard levels. And after that, based on all the information and comments collected, DOE moves to a final rule stage.

This slides shows the anticipated timelines for the parallel rulemakings, the test procedure rulemaking that would address what are the test procedures that would be put into the regulations for these products, and also the energy conservation standard. And it shows that – obviously this is a draft – but the intent would be the test procedure Notice of Proposed Rulemaking would be published prior to the energy conservation standard preliminary analysis, and likewise, that the test procedure final rule would be published prior to the energy conservation standard Notice of Proposed Rulemaking.

This would potentially lead to a final rule in the middle of 2014, with compliance date in the middle of 2017 for these products.

Now, recently DOE has considered the potential to accelerate some of these rulemakings in order to more quickly get to regulations, if that makes sense. Some of the options for that would be stakeholder negotiation which would then be considered in the DOE analyses that could save seven to 21 months, depending on how early in the process an agreement is reached.

DOE could alternatively consider bypassing publication of preliminary analysis and move directly

to a NOPR phase and that might save six to eight months.

So here we have a request for comment on whether DOE should consider acceleration of the timeline and publish a possible final rule. Which of these options might be feasible or recommended and what are the potential implications?

MR. BROOKMAN: Jen.

MS. CLEARY: Jen Cleary. I think we would oppose option two which would bypass the preliminary analysis. We think that's really an important opportunity for stakeholders to give feedback early in the process and impact the rulemaking, so we would not go for that option.

MR. BROOKMAN: Would you comment on option one?

MS. CLEARY: I think that's something we're certainly open to discussing.

MR. BROOKMAN: Okay. Thank you. So DOE is being quite flexible in offering some additional options here. Additional comments on these options? Joanna.

MS. MAUER: Joanna Mauer. I guess all I'd say at this point is in terms of option one, at least from the efficiency advocate perspective, it's very

helpful to us to have DOE preliminary analysis to be able to enter into negotiations.

MR. BROOKMAN: Thank you. Okay.

MR. WESTPHALEN: That covers the overview on framework, now we move into preliminary analysis in test procedures.

Preliminary Analysis in Test Procedures

I'll be presenting on some of the issues associated with test procedure. The past test procedures, the Code of Federal Regulations prescribes DOE test procedures for residential refrigeration products, but these test procedures currently do not include test procedures for testing wine chillers, such as standardized temperatures that are consistent with the use of these products.

AHAM, CEC and Canada have test procedures for wine chillers, and the test procedures – these test procedures are very similar to the existing test procedures that DOE and AHAM have for refrigerators, except for different standardized compartment temperature and also a usage factor which we'll talk about in a moment.

Some refrigeration products have a correction factor associated with them that is intended to address different levels of usage

associated, for instance, with door opening. The test procedure in use, the AHAM test procedure in use in California and Canada has a 0.85 usage factor, which is applied to the measured energy use, which essentially reduces the result by about 15 percent, or exactly 15 percent.

DOE requests comments on whether a correction factor is appropriate for calculating wine chillers energy use, whether .85 is the appropriate value, and whether this is the appropriate value or if another value is appropriate, whether there is any data that suggests – that supports the particular number.

MR. BROOKMAN: So 15 percent commenting on? Bill.

MR. BROWN: This is Bill from GE. Those correction factors do exist today for the upright freezers and for the chest freezers, the chest freezer being .7, and an upright freezer being a .85. I only conclude, take a look at the expected door openings for this product and you'd say they're about the same as you'd expect for an upright freezer product, not a chest freezer. The AHAM test procedure was simply mimicking the California, the NRCan test procedure when we added it to the HRF-1, just use the existing

.85 correction factor.

One other item that wasn't included is that - the existing NRCan test procedure does have a provision if you have a manual light switch, you click on, click off the light, that you test it with it on, you test with it off, and you take the average. That doesn't exist in the California test procedure.

MR. BROOKMAN: Do you have – would you state a preference for those two different methods?

MR. BROWN: I would say the implication is from Canada, that if you – they would say probably half the customers would turn that on and leave it on forever, and the other half would not. Many of the products that are out there today have a light that if you turn it on, it will turn itself off, and the existing test procedures say that you test that with it off. If it's manually initiated and automatically terminated, it's at its lowest energy consuming position. So I would, if I were going to say which - California or the NRCan - probably the NRCan is more representative, and might push manufacturers to look at a different type of system.

MR. BROOKMAN: Okay. Thank you. Yes, Joanna.

MS. MAUER: Joanna Mauer. I believe DOE has

been conducting some field metering on residential refrigerators. Has that included any metering of wine chillers?

MR. WESTPHALEN: What I'm aware of is metering of wine chillers, but not refrigerators, and maybe Jeff can speak a little bit more to that.

MR. GREENBLATT: This is Jeff Greenblatt from Lawrence Berkeley Lab. During the refrigerator-freezer rulemaking process, we did meter some refrigerators and freezers, as well as gathering data that other entities had metered previously. There's no current metering going on in refrigerators or freezers. We have preliminarily metered a small handful of wine chillers, focusing on thermoelectric units in order to get some preliminary estimates of energy use.

MR. BROOKMAN: Michael Kido.

MR. KIDO: My understanding is that those – those are informal measurements that were taken at this point, and I don't think –

MR. GREENBLATT: That's correct.

MR. KIDO: Right.

MR. BROOKMAN: Informal. Okay. Thank you. Additional comments?

MR. WESTPHALEN: We have a slide addressing

standby and off mode and request for comment. EPCA requires DOE to consider standby mode and off mode energy consumption when amending test procedures and DOE expects that any test procedure for wine chillers would be a variant of the existing test procedures for refrigerators. This test currently measures all the energy use, essentially when the compressor is on as well as when the compressor is off, so the feeling is that standby and off mode would already be captured in those measurements, and so DOE concludes that establishing separate provisions for standby and off mode for wine chiller testing is not necessary. But DOE requests comments on whether anything hasn't been considered in coming to this conclusion.

MR. BROOKMAN: Jen.

MS. CLEARY: AHAM agrees that standby would be captured in the existing test procedures and that's what we think DOE should adopt, so we agree.

MR. BROOKMAN: Okay. Thank you. Additional comments? Okay.

MR. WESTPHALEN: This is just a list of the test procedure key issues. They really have all been addressed already, you know, some of them in the scope discussion, and some of them in the discussion we just had. But DOE seeks comment regarding whether there

are any other key issues associated with the development of test procedures for wine chillers that should be considered that we haven't yet discussed.

MR. BROOKMAN: Other key issue comments?

MR. WESTPHALEN: Okay. And at this point I welcome my colleague Ken Nsofor who's going to be talking about market technology assessment and the screening and engineering analyses.

Market Technology Assessment

MR. NSOFOR: Thanks, Detlef. Kenneth Nsofor, Navigant Consulting. The next few slides will talk about some of the analysis DOE plans to conduct in the preliminary stage. First, there's the market and technology assessment. The purpose of the market assessment is to understand and characterize the market of wine chillers, understand the manufacturers. In this analysis DOE plans to identify manufacturers' wine chillers, understand the niche players and the large manufacturers of wine chillers in the industry, estimate the shipments and trends in the market, identify the federal regulations and initiatives out there today in an attempt to improve the efficiency of wine chillers, and also identify various technologies that could improve efficiency of wine chillers.

Right now we open up comments to

stakeholders and everybody out here. Just give us a little feedback and help with the market analysis. Typical information we may need, like shipment, and if anybody could open up comments.

MR. BROOKMAN: Bill.

MR. BROWN: Does DOE or Navigant intend to visit individual manufacturers like you did in the refrigerator rulemaking in order to get this type of data, or would you expect it to be submitted and become public information?

MR. NSOFOR: The answer to that question is yes. During the preliminary manufacturing impact analysis, Navigant and DOE plans to visit manufacturers and there's a plan to have an NDA in place as well, so we can handle confidential information.

MR. WESTPHALEN: This is Detlef Westphalen. I'd like to add to that oftentimes in these rulemakings there's an information gathering exercise that one of the trade organizations might endeavor to conduct. The question would be whether AHAM and AHAM's members would be interested in working to assemble some data that would be relevant to the rulemaking, you know, in particular, shipment data, efficiency level data of existing products, and things

like that. In some rulemakings this has worked very well, in other rulemakings the trade organization is not very receptive to that kind of an effort. But obviously, that's one of the things we're talking about here that potentially would be very important to make sure that DOE understands the market.

MR. BROOKMAN: Jen.

MS. CLEARY: We're certainly willing to look into what data we might be able to collect. It may depend on how we currently collect data on wine chillers, like what the break downs are, things like that. So we'll just have to evaluate our current data collection and what we might be able to do in support of this rulemaking.

MR. BROOKMAN: A question came up a little earlier this morning: do you collect some data now, Jen?

MS. CLEARY: Yeah, I think we do collect some. I really have to look, though, to see exactly what we collect. I think it may be fairly limited.

MR. BROOKMAN: Detlef, I myself remain unclear and sometimes the timetable changes for these different rulemakings. Typically in the manufacturer interviews happen a little further downstream. You're suggesting they could happen quickly.

MR. NSOFOR: They will happen during the preliminary phase. We do have two stages of interviews. One is conducted in the preliminary stage, like the stage after this public meeting, and after the NOPR phase as well.

MR. BROOKMAN: So you're thinking about getting to these interviews pretty quickly?

MR. NSOFOR: Detlef will –

MR. BROOKMAN: Detlef.

MR. WESTPHALEN: Yeah, this is Detlef. Yes, as Ken said, generally interviews are conducted prior to the preliminary documents being published, and then prior to the NOPR documents being published, and some of the material covered in each of those series of interviews is different because, you know, some of the focus initially is very much on the technical side, and the manufacturer impact side of those interviews is at the preliminary stage. But DOE would certainly be very much interested in engaging the manufacturers in those kinds of discussions. Depending on all the stakeholder feedback and some of the decisions that DOE makes, you know, it's not clear whether we will be reaching out to the manufacturers right after this meeting to try to schedule interviews, or whether that might be pushed down the road a little bit so that we

can understand exactly what scope DOE is going to be addressing. But certainly prior to finalizing the preliminary analyses we will be interested in having those initial meetings.

MR. BROOKMAN: Okay. Thank you. Jen.

MS. CLEARY: Can you give us an idea – I understand that the request for data in this framework document you may be expecting them March 14th when comments are due, but if we do have data, what we would be able to give at that time would be very limited, so is there another date by which it would be helpful for you to have any other data we may have?

MR. WESTPHALEN: This is Detlef. I think the best way to approach this is to have some kind of a dialogue where we work out, okay, what kind of shall we say, information forms could be generated that the manufacturers might provide information for; or whether you have information available that you've already collected. I don't think this has to be within the context of the comment period. Data submissions are certainly welcome at any time.

MR. BROOKMAN: So you'll be in touch.

MR. WESTPHALEN: Yes, we'll be in touch.

MR. BROOKMAN: Is the bottom line.

MS. CLEARY: Thank you.

MR. BROOKMAN: Put the initiative on somebody there.

MR. WESTPHALEN: Thank you.

MR. BROOKMAN: Yes, thank you, Detlef.

MR. GREENBLATT: And this is Jeff Greenblatt. I just also want to reiterate, we'll be mentioning this a little bit later this afternoon with regards to other kinds of data, but in particular since shipments are mentioned here, you know, that kind of information would be useful over the next few months, since we have until the end of the year to publish a preliminary analysis. But that data needs to be in place a few months before so that we can put that into all of our calculations.

MR. BROOKMAN: Okay. Great. Final comments on this?

MR. NSOFOR: All right. The next slides are about product classes. DOE has identified potential product classes for this rulemaking. One is residential wine chillers with manual defrost and the second is residential wine chillers with automatic defrost.

Listed below are the criteria that DOE goes by in selecting product classes. To pull examples: the type of energy used, the capacity, and other

performance-related features that might warrant a separate product class.

The slide requests comments in regards to the two product classes DOE has identified so far.

MR. BROOKMAN: Yes, Jen.

MS. CLEARY: AHAM thinks that DOE should adopt the Canadian and Californian approach with regard to both of these items.

MR. BROOKMAN: Okay. Additional comments, and particularly if there are additional thoughts on these product classes? Nothing additional. Okay.

MR. NSOFOR: Now we have more comments on the next slides, pretty much, the next comments are whether wine chillers have automatic defrost for the class, and whether they have manual defrost as well. item 3-5.

MR. BROOKMAN: Comments on these? Okay.

MR. BROWN: This is Bill from GE. One of the questions I see: do any wine chillers utilize manual defrost? And just looking at the California Energy Commission’s database, there were five out of 200 or so.

MR. BROOKMAN: What is manual defrost?

MR. BROWN: Manual defrost is manual, you have to actually – the customer has to actually

perform an action to remove the defrost – to remove the frost. You turn it off and you let it melt, don't recommend scraping it off, but some people do that as well. So yes, you have to take an action to make it – and get rid of the water. Automatic basically it defrosts by itself and evaporates the water by itself. And looking at the NRCan database, there were, you know, five or so of those products that were manual defrost as well, so they do exist. It's just not a lot, it's in the one percent of the market. I'm just saying, from the number SKUs, I don't know the number of the sales that go with those SKUs.

MR. BROOKMAN: Is there a trend line there? Jen?

MS. CLEARY: I don't – again, am not aware. Can't answer that question.

MR. BROOKMAN: Yes, Detlef.

MR. WESTPHALEN: This is Detlef Westphalen. I guess, you know, we looked at the databases, and we questioned the existence of the manual defrost products because some of those products listed in the databases aren't for sale any more. Others are actually now advertised on their websites as having automatic defrost, so we were only able to find one product where we couldn't definitively say it's not

manual defrost, but we couldn't say definitively that it is either.

The request for comment also addressed the question of whether active heating is required to achieve defrost in any of these products that are termed automatic defrost, since compressor off cycle defrost is an option for automatic defrost.

MR. BROOKMAN: Comments on active heating? Bill?

MR. BROWN: This is Bill again. To say it's required or not, I can't really say, but most of the products that I've seen out there, it's off cycle defrost. Especially the temperatures you're running and the low run times that you've got, you're just not going to build up – you've got so much off time between the compressor, that you really do not need an active heater.

MR. BROOKMAN: Okay. Thank you.

Technology Assessment

MR. NSOFOR: During the technology assessment, DOE tries to understand how the products consume energy, and also come up with technology options that could help improve efficiency of wine chillers. Listed in the slides are the technology options going forward, that DOE plans to investigate

further. I'll give you a little time to look it over. And a lot of these technology options came about from the refrigeration rulemaking that was published already.

The next slide opens up comment about the technology options listed in the previous slide.

MR. BROOKMAN: And indeed, if there are any additional technologies that may or should be investigated. Or comments on these, for that matter. Charlie.

MR. HON: On your list I do not see anything about lighting.

MR. NSOFOR: Okay. We don't have that in here but we'll definitely look into it.

MR. HON: Because LED lighting is making major impacts in some other areas and would definitely make an impact on the total refrigeration requirements.

MR. BROOKMAN: They're in little units now?

MR. HON: Yep.

MR. BROOKMAN: Okay. Wow.

MR. BROWN: This is Bill from GE again. If you adopt the NRCan definition, that's a yes, lighting should be considered because on and off. With the current DOE test procedure, the testing is done with

no door openings. So lights wouldn't come on, it wouldn't matter what light you put in the product.

MR. BROOKMAN: Charlie.

MR. HON: Charlie Hon. But what about if there's a switch.

MR. BROWN: That's what I'm saying, if you adopt the NRCan definition, then NRCan does say test it on and off, take the average.

MR. BROOKMAN: So that's helpful. Any additional things that should be added to this list or comments about what would not be appropriate to be included in this list? Okay.

Screening Analysis

MR. NSOFOR: The next thing I'll talk about is the screening analysis. The purpose of the screening analysis is to screen out technologies that DOE does not consider in its engineering analysis. So looking at the technology options, we'll look – we had on the previous slide. DOE goes by four different criteria in screening out technologies. One of them is technology feasibility. This pretty much means that the technology has to exist in a commercial application, and in prototype. If that technology doesn't exist today, DOE will not consider it further.

It has to be practical to manufacture,

install and service. Whatever technology DOE tries to implement to improve efficiency has to be available on a large scale at the time the standard is set.

And the last two criteria are pretty simple, self-explanatory. Any technology must not impact the health or the safety of the people using it.

This slide would –

MR. BROOKMAN: Hold on. Please, Jon.

MR. BROWN: One question is does DOE consider technologies that are patented? You know, one manufacturer can use this technology but no one else can.

MR. BROOKMAN: Detlef?

MR. WESTPHALEN: This is Detlef Westphalen. In answer to that comment, DOE can consider efficiency levels that are attained by such technologies if alternative technologies would be available to other manufacturers to achieve those levels.

MR. NSOFOR: In other words, if that technology provides benefits to one specific manufacturer, DOE would not consider the technology further.

MR. BROWN: I would just like to see that spelled out then, because I haven’t seen that in any of the DOE documents before. There have been

technologies out there that have been one manufacturer can use it and no one else can, and that is looked at as it's available to the whole market place, and it's not.

MR. BROOKMAN: Thank you. So you see the four factors that the Department considers. Additional comments on those? Nothing additional. Okay.

Engineering Analysis

MR. NSOFOR: The next slide will talk about the engineering analysis. The goal of the engineering analysis is to create a cost relationship, cost-efficiency relationship in implementing more energy – efficient technologies for wine chillers. DOE plans to use a combination of different approaches, mainly a design option approach, efficiency level approach, and reverse engineering approach.

And I'm not going to read every one out right now. Just ask for comment. We request feedback on other options

MR. BROOKMAN: So you can see the comment box there. All set? Okay. So additional comments related to the engineering analysis methodology? Okay.

MR. NSOFOR: Like I said before, one of the approaches DOE plans to use in the establishment of the

cost-efficiency relationship is reverse engineering. Listed below are the products that DOE plans to reverse engineer, tear apart to understand how the technologies help improve efficiency. And it's a combination of the two different product classes, automatic and manual defrost. And we'd like to get feedback from stakeholders about our selection choice. That's the next slide for comments.

This slide talks about setting up a baseline going forward. DOE plans to use the Californian and Canadian baseline – standards as baseline, and if you look there, we have a formula, I believe the manual defrost is approximately - maximum energy is about 281, and the automatic defrost is about 370-something. DOE plans to use these as the baseline and understanding how implementing different technology options, how the cost and efficiency differs between the baseline and more efficient standard.

MR. BROOKMAN: So go back to the preceding slide.

MR. NSOFOR: Sure.

MR. BROOKMAN: So if you would take a peek at what the Department is considering for its tear down analysis. Comments? Are these representative? Let's proceed to the next.

MR. NSOFOR: The next is just the comment down at the bottom. Seeking if these and the California and Canadian as baseline is appropriate.

MR. BROOKMAN: So you can see the comment box there at the bottom of the page, 5-1. Input from stakeholders and whether the equations for maximum annual energy consumption based on the California and Canadian regulations are appropriate to represent the performance at baseline of wine chillers. No comments on Canadian or California regulations and that baseline? Okay.

MR. NSOFOR: The next slide is the incremental efficiency levels DOE plans to establish in this rulemaking. And for automatic defrost, DOE plans to establish efficiency levels up to 40 percent from the baseline; and for the manual defrost, about 25 percent.

We'd also like to get comments on these numbers.

MR. BROOKMAN: Joanna.

MS. MAUER: Joanna Mauer. So DOE is required to look at the maximum technologically feasible levels, and this doesn't seem to be a product category where we necessarily assume that the most efficient products that are commercially available truly represent a max

tech level.

MR. NSOFOR: That's correct. Although we have products out there that use less energy than the maximum established standard, by the time DOE factors in other different design options, we might have a different max tech out there that could actually be lower than the best efficient unit out in the marketplace.

MS. MAUER: Okay. And we'd encourage DOE definitely to look at what the real max tech is as I think they did in the residential refrigerator rulemaking, where I believe there were – the max tech levels were beyond the best products available in the market.

MR. NSOFOR: I think going forward we will have – potentially might have a different max tech than the best product out there.

MS. MAUER: Okay.

MR. NSOFOR: This slide is talking about industry data collection. Pretty much request participation from stakeholders in collecting data. We talked about this previously, when we started. And we would like to get comments about products out there from stakeholders, and appreciate their participation, in giving us feedback as well.

MR. BROOKMAN: Comments on industry data collection?

MR. NSOFOR: And this answers the question to the GE comment about proprietary designs. And like I said before, DOE evaluates all design options that are commercially available, including proprietary design, but if a design gives one manufacturer an advantage, DOE will not consider that design option. And also we maintain confidentiality with manufacturers as well.

MR. BROOKMAN: See the comment boxes. There's more there, for example, cost data, how the Department might acquire that. Nothing additional.

MR. NSOFOR: This slide talks about outside regulatory change. In conducting an engineering analysis, DOE looks at all the regulations out there to understand how the combination of different regulations impact manufacturers. It could be -- a lot of regulations could create a burden for manufacturers, so DOE considers this in this analysis. And the last is just the comments out there to understand different regulations out there that DOE might want to get information from manufacturers that could potentially impact manufacturers of wine chillers.

MR. BROOKMAN: Any other pending regulatory action that might impact this rulemaking?

MR. NSOFOR: And Jeff will do the next slides.

MR. BROOKMAN: Next, we're going to hear from Jeff Greenblatt. Markups, Energy Use, life-cycle costs, payback period analyses.

Markups, Energy Use, Life-cycle costs, Payback period analyses

MR. GREENBLATT: Thank you everyone. Can you hear me okay? So, I'm going to talk to you about the modeling after the engineering work has been done, in order to get ultimately to estimates of life-cycle cost and national impacts. The first step is to determine the markup, which is a factor that converts the cost of goods sold, which is reported from the engineering analysis to a final consumer price. There are usually two types of markups that are considered and that was considered for the refrigerator-freezer rulemaking. A baseline markup, and an incremental markup, and the factors for these can be different, and often are.

The baseline markup essentially includes all of the additional costs that are incurred in going from the manufactured product to the final retail price, that is consistent with a product that meets just the minimum efficiency level. That is, without

an increase in efficiency. So this includes all of the costs of the distributor, distributors' overheads, profits, but not including sales tax which is applied separately.

By comparison, the incremental markup refers to those markups that are incurred only in association with selling a more efficient product, and so it generally tends to be much smaller. Certain costs, such as direct labor costs, rental occupancy, et cetera, do not vary with the efficiency level, so would not be included in that incremental markup, but certain costs, such as marketing of a more efficient product, would.

We gather whatever public information we're able in order to calculate the baseline and incremental markups, but obviously additional information from manufacturers or others would be helpful. So we ask for stakeholders to provide that information if it's available.

MR. BROOKMAN: I guess this is more – principally at this point a notation about future activity.

MR. GREENBLATT: Yes, whether this is an appropriate approach going forward.

MR. BROOKMAN: No comment here. Okay.

MR. GREENBLATT: Okay. And then the next step is determining energy use of the products in actual use. So it's important to determine the actual energy use of these products in the residential setting in order to assess the energy savings potential of more efficient products. And this provides the basis for our estimates in the life-cycle cost analysis.

So for residential refrigerators, refrigerator-freezers, and freezers, we were able – DOE was able to rely on information provided in the residential energy consumption survey, or RECS. However, RECS does not have information on wine chillers, so even knowing the distribution of these products in homes is not very well known, let alone knowing what the energy consumption of these products are.

So the approach that we're taking is to look at the limited sales data that's available and combine that with estimates from California's maximum energy use standards in order to estimate a range of energy use for vapor compression wine chillers. The problem with this approach are two limitations: that one, we're only able to estimate the maximum energy use for each model as opposed to its actual use in

the field, and it's also unknown whether the test procedure provides a reasonable estimate of the actual energy use of these products.

So because of this lack of information, DOE is seeking in situ field measurements as one possible way to get more accurate information about the energy use of wine chillers and other miscellaneous products in the field.

So some question boxes here. DOE seeks comment on its approach in estimating the annual energy consumption based on the combination of sales data and the existing energy conservation standards from California. We're looking for additional data sources for establishing energy consumption and we'd also like comment on the viability of using in situ field measurements. Do you have any comments?

MR. BROOKMAN: Jen.

MS. CLEARY: AHAM has some serious concerns about the in situ field measurements. They're really not going to be that accurate, we don't think, especially – mainly because it's hard to compare them to like a test procedure energy usage. So we'll provide a lot more detail in our written comments, but we have some serious concerns about that approach.

MR. BROOKMAN: Okay. Thank you.

MS. CLEARY: Also – actually I have a question. I don't think you mentioned the rebound effect here, or even to talk about – better.

MR. GREENBLATT: Yes, I believe we'll mention that in a couple of slides.

MS. CLEARY: Okay. So I'll just ask the question then, it's about that.

MR. GREENBLATT: Okay. Let's wait until I present the material.

MR. BROOKMAN: Yeah. Joanna.

MS. MAUER: Joanna Mauer. Could you just explain a little bit more about what you mean by using in situ field measurements, or what that would involve?

MR. GREENBLATT: Sure. In situ field measurements basically means metering devices that are being used in a residential setting. So it would be attaching a meter to a number of wine chillers or other products, and taking measurements for a period of weeks or months.

MR. BROOKMAN: Yes, Jon.

MR. WIENER: Can you say a little bit more about why the Department thinks California's maximum energy use standards might be valid? My concerns are

that they're maximum, one, they're older, two, and that they include thermoelectric products as well.

MR. GREENBLATT: It's easier all –

MR. WIENER: As it's written. I don't know if they're actually – it's unclear to what extent they're actually covering thermoelectric products.

MR. GREENBLATT: Right. To DOE's knowledge – well, DOE does not know whether it includes thermoelectric products. I think that the feeling is that it probably doesn't, but we're not actually sure. And DOE is – we agree with these concerns exactly, that it is – it represents a maximum, so DOE doesn't actually know what the energy use of these products are in actual use.

MR. WIENER: It would seem it would be a useful way of double-checking DOE's own – if you reach the – pick a number, you arrive at a number and then you can check it against the maximum and make sure it's not less stringent than what California has said. It would be useful in that way. I can't see that it would be useful as a data point in another way, because it's going to skew your data, presumably.

MR. GREENBLATT: Then again, it may actually be accurate, but without having other complementary

information, it's hard to say. But it's not going to be a low estimate of energy use because it's a maximum.

MR. WIENER: I would agree with that.

MR. BROOKMAN: Detlef.

MR. WESTPHALEN: This is Detlef Westphalen. Regarding the discussion about the California energy standards, they don't really distinguish technologies, so that thermoelectric products sold in California are subject to those requirements and as mentioned previously, a few such thermoelectric products have been found on the database, and I don't know if it was NRCan's database or California's database. I believe Lucas was involved with that.

MR. ADIN: If I remember correctly it was California.

MR. WESTPHALEN: California, so one would assume that thermoelectric products that are legal to be sold in California, and are actually being sold, are subject to that maximum as well.

MR. ADIN: I would hope so.

MR. BROOKMAN: Yes, Jen.

MS. CLEARY: Has DOE asked CEC if they cover thermoelectric products?

MR. WESTPHALEN: This is Detlef. We did ask

that question and they said, yes, they're covered.

MS. CLEARY: Thank you.

MR. BROWN: The only question I would have is has anyone investigated how CEC arrived at their equations that they use today? Did they go through the same diligence that DOE did, or just exactly what did they do? I know those equations have been around for a while.

MR. BROOKMAN: Yes, thanks Jon.

MR. WESTPHALEN: This is Detlef. In response to that, it's very difficult to find out how California developed those standards. It's very difficult to find any information as to even when those standards first took effect, so we have not been able to find that information, and certainly we'll do more research to look into it.

MR. BROOKMAN: So I made an error, that was Detlef, and prior to that, it was Bill. Okay. Thank you. So these are good comments. Additional comments related to these comment boxes? Okay.

MR. GREENBLATT: Okay. I'll move on then. So one possibility that DOE is considering is whether the annual energy use could be characterized with a sensitivity analysis, so basically getting around the problem of having only a single maximum energy use

number, instead it could be done with a high and low estimate of energy use, based on minimum and maximum efficiency that is seen, perhaps, in the CEC database, or other data, in order to bracket the life-cycle cost and national energy impact results to help determine economic feasibility of setting the various efficiency levels.

And the comment that AHAM had mentioned, DOE seeks comment on the rebound effect associated with more efficient wine chillers. Basically, we're questioning if a wine chiller is made to be more efficient, does the consumer actually end up using it more in terms of, on a normalized basis, more intensively than a less efficient wine chiller or would a consumer purchase a larger product, all other things being equal, and thereby use more energy with a more efficient product.

MR. BROOKMAN: Jen.

MS. CLEARY: And so the framework document states that DOE has determined that the rebound effect doesn't apply to home appliances. So I was just kind of wondering why is this being addressed if it doesn't apply? Why waste the time looking at it?

MR. BROOKMAN: Lucas?

MR. ADIN: Yeah, this is Lucas Adin from DOE.

I mean that's a general presumption, but we're certainly interested in any information suggesting that that presumption is incorrect, or that there's some reason we should be considering that particular aspect in our analysis. So it isn't to say that we're going into this with a firm conviction that it's not a factor, but at least that's the presumption as of right now.

MS. CLEARY: Thanks.

MR. BROOKMAN: Okay. Jon.

MR. WIENER: Jon Wiener, Earthjustice. The question about the sensitivity analysis. Does the Department have experience with using sensitivity analyses to – for these standards? My concern is how OMB might react and what they might require you to – they might pick the low estimate and just treat that as the actual estimate. Has that come up before?

MR. GREENBLATT: This is Jeff. I don't have direct experience with that, but Lucas are you familiar with other proceedings where we've had a sensitivity analysis? Or Michael?

MR. ADIN: I'm not sure I could comment specifically on that.

MR. BROOKMAN: So you can see the comment boxes up there and we've at least taken a shot at

both of those. Additional comments?

MR. GREENBLATT: Okay. So the next item to cover is calculation of life-cycle cost and payback period analysis, standard part of the DOE procedure. So the life-cycle cost analysis consists of two main elements, estimate of the first cost, basically the consumer price paid plus any installation costs, and then the operating costs over the life of the product, which includes both the cost of supplying the energy, as well as maintenance costs. And these operating costs are discounted to a particular year in order to arrive at the total life-cycle cost. And life-cycle cost is calculated as a difference between the cost of a baseline efficiency unit and a more efficient unit, so looking at whether that total number is greater or smaller.

This is done from the consumer's perspective, and one thing to point out is this is done as a statistical analysis where a number of the variables – variable inputs vary, and are sampled using a Monte Carlo statistical approach, so essentially different households will have different features in terms of the amount of energy that the product uses, its size, the lifetime of the product and other characteristics of the household, the temperature, since this is a

product that's driven partly by interior room temperatures.

And then the payback period is a simple calculation that equals the first cost divided by the operating cost over a single year.

Now that's done for the preliminary analysis. For the later stage of analysis, there's also a subgroup analysis that's performed, so certain consumer groups may be especially vulnerable or have other different characteristics that set it apart from the main sort of general population, and so DOE routinely looks at potential consumer subgroups and does an analysis only on that group to see whether the life-cycle cost impacts are significantly different than might cause it to consider this information in setting the final standard levels.

For instance, the different regional electricity prices is often a significant factor in making the life-cycle cost not the same from one part of the country to another.

DOE requests input into any consumer subgroups that might be appropriate when considering standards for these products.

MR. BROOKMAN: I think it's an interesting question. No subgroups come to mind.

MR. GREENBLATT: I'll just say for the record that we generally look at low income and seniors as routine subgroups, but sometimes others, depending on the particular product at hand.

MR. BROOKMAN: Charlie.

MR. HON: It may sound somewhat tacky, but I think you're going to discover that when you look at your subgroups, it's a different group of subgroups than normal standard, because this is not a required product for the market. You're dealing with a different nature product, usually more affluence involved in it.

MR. BROOKMAN: As they get more senior do they drink more wine, for example? Do they need special consideration?

MR. HON: Sorry. From a – Charlie Hon – from a construction viewpoint, you have to be very cognizant of that because a lot of wine coolers are built as under-counter models, and with senior citizens, they don't work, because they have problems getting up and down. So they're more interested in above counter-type configurations.

MR. BROOKMAN: Additional comments on subgroup analysis?

MR. GREENBLATT: Okay. Thank you for that

comment. I'm not – this next chart shows all of the different elements in the flow chart of calculating the final life-cycle costs. I'm not going to go through all of these, but if anybody has comments or questions about these particular elements, if you can read it, either on your handout or on the chart, I'll be happy to answer any questions.

Now one thing in particular that we wanted to ask for comment on has to do with installation, maintenance and repair costs, and particularly whether these costs change with more efficient products. It's DOE's assumption that the cost of installation, if any, would probably be identical between a baseline unit and a more efficient unit, and that this would probably also be the case for repair and maintenance of products. But we don't know for sure, so any information that stakeholders have to shed light on this would be useful. Also, just estimates, even of the baseline efficiency installation, maintenance or repair costs would be helpful for our analysis.

I'll just read this last bullet here, unless the efficiency increase is considered result in significantly larger or heavier products, DOE expects that more efficient products will not incur increased installation costs.

So there's several comments here. I won't read them all, but basically I summarized these requests for comments on the previous slide –

MR. BROOKMAN: And also maintenance, correct?

MR. GREENBLATT: Yes – installation, repair and maintenance costs.

MR. BROOKMAN: So, Jen.

MS. CLEARY: Jen Cleary. AHAM agrees that the installation costs probably won't vary depending on the efficiency of the product.

MR. BROOKMAN: In some previous rulemakings I seem to recall that some commenters suggested that more efficient products with a different configuration that led to higher efficiency may need more maintenance or repair. Jen?

MS. CLEARY: We don't have comments on that at this time. Just installation.

MR. BROOKMAN: Okay. Just thought I'd try it. So no additional comments on this?

MR. GREENBLATT: Oh, actually I think there is one here.

MR. BROOKMAN: Yes, Charlie.

MR. HON: There's going to be some correlation there. A lot of your high efficiency fans are more prone – have a shorter life cycle. There will

also be, I think you will find a difference in life-cycle costs because there's a definite difference in these products. They're what I would consider a throw-away product after five years. If you're paying $3-500 dollars for a unit, you don't get it fixed. If you're paying $2500 for a unit, you get it fixed. So you have a definite discussion between repair cost and additional purchase price.

MR. BROOKMAN: Okay. Thank you. What's the life span between those low-end products and high-end products?

MR. HON: Charlie Hon again. That's highly debatable because there's a lot of very reliable low end products that don't have all the features. They just do a very good job at keeping it near target temperature, but they don't have all the bells and whistles added on, and the more bells and whistles you put on, the more problematic you become.

MR. BROOKMAN: Thank you.

MR. GREENBLATT: I will – actually there are a couple of these items that did not pertain to installation and maintenance, so I just wanted to read them, but before I do, I also want to ask the question, in another slide or two we're going to ask about estimates of the lifetime of these products, so we

would be open to any information that stakeholders have, but also the question occurs to me, is it possible that the lifetime might actually change with the efficiency of the product?

The questions I wanted to read, just to make sure that people see it. DOE seeks comments on the general approach of using probability distribution and Monte Carlo simulation to conduct the life-cycle cost and payback period analyses. Also requesting data from stakeholders to characterize the current mix of wine chiller efficiencies and the approach for estimating current and forecasted energy prices, which I'll state for the record generally uses forecasts from EIA.

MR. BROOKMAN: Okay.

MR. GREENBLATT: Okay. I'll move on. Oh, here's the lifetime question. Right. So DOE currently does not have good estimates, or really any estimates of the lifetime of wine chillers and related miscellaneous refrigeration equipment. What DOE does have are well constrained estimates of the lifetime of refrigerator – standard-size refrigerator-freezers and freezers, which are approximately 17 and 22 years on average, respectively. For compact refrigerators and freezers, DOE has developed certainly less precise estimates which give mean lifetimes of about five and a

half and seven and a half years. We would welcome any information to help us estimate the lifetime of these other products.

Shipments Analysis

Okay. I'm moving on to shipments analysis then. After the life-cycle cost analysis is complete, DOE then makes estimates of the current and future shipments of products in order to estimate national impacts of potential efficiency standards. Currently DOE is aware of two data sources, AHAM and NPD Group, which provides some shipments data, current shipments data. Projections based on fits of these data can be developed and in particular, the estimate of standards on future shipments will be calculated, essentially that if there's an increase in the price of the product, we have an elasticity that allows us to estimate the decreased sales of that product as a result. This is based on some broad analyses of home appliances generally, not specifically wine chillers.

DOE seeks comments or seeks information about historical shipments as well as projected future shipments from stakeholders, and in particular if information which we've asked for already, but I'll just repeat since it's here, what the breakdown is based on the type of cooling technology, vapor

compression versus thermoelectric or absorption, and if DOE is unable to get additional sources of data other than AHAM and NPD Group, it would seek comment on which data source is more representative. This is not listed here on this slide, but it is in the framework document. There are large disparities in volume between the AHAM and NPD Group, with the NPD Group showing significantly higher sales. However, even there there are some uncertainties because NPD Group does not represent all sales in the U.S., but only a portion, and that market share that's captured is a little bit – it's not very precisely known. I think it's between about 30 and 50 percent of the market.

MR. BROOKMAN: What is the NPD Group?

MR. GREENBLATT: NPD Group is a private market research firm that essentially collects sales data from end use retailers and compiles it and then sells it to interested parties such as DOE.

MR. BROOKMAN: So comments related to historical shipments and any other data? Nothing at this time.

MR. GREENBLATT: Some other questions here. DOE seeks input on the type of potential scenarios it should use to forecast base case shipments. I had hinted about it in the previous slide. Should we

assume essentially a straight line fit to historical shipments or something else? We'd also seek, as part of its preliminary manufacturer impact analysis, the impact of new standards on wine chiller shipments. This is related to the elasticity effect that I had mentioned previously, as well as any other market pull programs that currently exist to promote the adoption of more efficient wine chillers.

Okay. No other comments, I'll move on.

MR. BROOKMAN: Let's wait. I'm hoping to get a comment on this one. There ought to be, right? What would you expect – is this going to be a historical straight line? Is it going to correlate with housing starts? With rehab activity? Come on, we can get –

MR. GREENBLATT: With sales of wine?

MR. BROOKMAN: Charlie.

MR. HON: We've seen in our sales that the rehab activity has a major impact into it, as people redesign kitchens, they want new features in them, more under-counter appliances, compacters - trash compacters, drawered refrigeration units, wine cabinets, a lot of different things going in under counter, enlarging the kitchen space altogether. New housing starts, houses that put all these features in are traditionally somewhat not economically the same

parallel as the rest of the market, so –

MR. BROOKMAN: So if you can segment the housing starts to a high end –

MR. HON: High end products would be important, but there are a lot of – there's a secondary – there's two different sectors of the market. You have a lot of commodity product bought at the big box stores, which is a self-contained, put it in the back of your SUV and drive it home, or a less expensive product that would not be related to that at all. So there's going to be – I think it's certainly not linear. It's certainly going to be increasing in the near future.

MR. BROOKMAN: Okay. Thank you. You want to – Lucas Adin.

MR. ADIN: I'm just going to read a comment that we had sent in from the California Energy Commission. This regards thermowine chillers, so this is actually going back a little bit, but this is actually pretty important to mention. They say that "The topic of thermoelectric wine chillers is an interesting one. Some manufacturers of these units have claimed they cannot reach 55 degree temperature necessary to perform the California efficiency test for wine chillers. Operating at a higher, 58 to 60 degree

temperature, energy use have yet to evaluate these claims but we are not sure whether to amend our regulations to accept a product that does not actually reach a suitable temperature for storing wine."

And we discussed this a little bit. I mean, one thing to consider, the energy test is performed at a 90 degree ambient, so I mean, theoretically that could affect any product's ability to get down to – to get down to that test temperature, that standardized test temperature, depending on how good the insulation is, so it could be a matter of considering another type of test as well.

MR. BROOKMAN: Okay. Thank you. You can see the comment boxes up there. I appreciate the comment that we did receive. Any additional thoughts, and also it mentions market pull programs, whether they exist presently. Nothing additional. Okay.

MR. GREENBLATT: Well, I was going to cover the national impact analysis, well all of this, actually, after lunch, but it's up to you, Doug.

MR. BROOKMAN: Let me see. How much – it doesn't seem like we have a lot left, does it?

MR. GREENBLATT: No.

MR. BROOKMAN: So I'd suggest we just press on and finish. Yes? Yes. Okay. That's what

we're going to do.

National Impact Analysis

MR. GREENBLATT: Okay. So the purpose of the national impact analysis is to estimate the national energy savings and national net present value of consumer savings for higher efficiency level standards. DOE intends to take into account the rebound effect associated with more efficient wine chillers, if there was a reduction in shipments from a more efficient but more expensive unit that I had mentioned a few minutes ago. I also forgot to mention that – it was on the slide – that the LCC as well as this national impact analysis are all done on Excel spreadsheets so that stakeholders have full access to the data analysis if they want to run their own scenarios or otherwise look into the details of the calculations.

So, mentioned a few times this question of the efficiency distribution of wine chiller and related products. What's especially useful for the national impact analysis is not so much the breakdown at each efficiency level, but just the shipment weighted average efficiency which is what is needed in order to calculate the national impacts going forward. Historically, we've been able to – or DOE has been able to get these shipment weighted average efficiencies

from manufacturers, such as AHAM. We hope that we will be able to get similar information for wine chillers, but it's not apparent that this information is readily available.

And also the national net present value calculations are always calculated per OMB guidance at three and seven percent discount rates, which is different from the discount rate used in the LCC analysis, where it's – it depends on each particular household. It's part of the Monte Carlo analysis and is an average of just over five percent.

So DOE seeks the historical shipment weighted average efficiency data for wine chillers as well as market shares, showing the percentage shipped at each efficiency level. And DOE seeks comments on its plan to use the established approach of Excel spreadsheets for modeling national impact and national energy savings.

MR. BROOKMAN: So the second question should be no surprise to anyone, that's established method. What about historical shipment data? Do we have that now? Jen.

MS. CLEARY: We'll check into it.

MR. BROOKMAN: Okay, thank you.

MR. GREENBLATT: Okay. Ken, I think you have

a few minutes of slides here.

MR. BROOKMAN: Next we'll hear from Ken Nsofor.

Manufacturer Impact Analysis

MR. NSOFOR: All right, the next slide, I'll talk about the manufacturer impact analysis. The goal for the MIA is to understand the impact of standards to manufacturers. During this phase of the analysis, DOE plans to conduct interviews with manufacturers to understand how the standards will affect direct employment, capital assets, and also industry competitiveness. DOE also plans to understand industry cash flow using the GRIM, the GRIM stands for the Government Regulatory Impact Model, and based on the analysis DOE conducts in this phase, going forward, we will revisit with manufacturers and conduct the follow-up interview at the NOPR stage.

As we discussed in the market and technology assessment, DOE plans to segment out -- understand the manufacturers subgroup, small manufacturers, the niche players, and large manufacturers each exhibit a different cost structure that differs within the industry. And DOE will try to understand how implementation of new standards affects each manufacturer.

Right now we'll open up for comment and request comments from and feedback from stakeholders, in other words, to try to understand the different subgroups of manufacturers of the wine chill industry.

MR. BROOKMAN: So are there subgroups that you would call out at this time? Nothing at this time.

MR. NSOFOR: Again, as we discussed in the market and technology assessment, DOE tries to understand different regulations out there that might become a burden to manufacturers as we go ahead and implement standards for chillers. Typical regulations that could affect this rulemaking are regulations for refrigeration standards, the phase out of HCFC blowing agents that happened in 2003. Regulations limiting emissions of greenhouse gases, and also reduction of hazardous substances. And right now we ask stakeholders if there are other regulations out there that could potentially impact manufacturers.

MR. BROOKMAN: No additional regulatory burdens that come to mind at this time?

MR. NSOFOR: Okay. Jeff, you want to talk about this.

MR. GREENBLATT: Yeah, it's like a slide left.

MR. NSOFOR: It goes back to Jeff.

Plans for NOPR Phase

MR. GREENBLATT: All right. I don't have to rush this, but I don't think there's much to say here. This is Jeff again. So the last part of the presentation concerns the plans for the NOPR phase of the analysis. So after the publication of the preliminary analysis, DOE receives stakeholder comments and then goes back to revise its analysis and then in addition, perform some extra analysis steps which are outlined here. So those extra steps are the life-cycle cost subgroup analysis that I mentioned earlier, the full manufacturer impact analysis, and then some other analyses related to, which are called the downstream analyses related to the national impact. So DOE calculates the impact on the utility sector in terms of changes in power plant operations and construction, as well as the impact on employment throughout the country, impacts on air quality and other environmental concerns, but primarily it's air quality – CO2, NOX, SOX, and so on as a result of reduced energy use. And finally, the regulatory impact analysis, which is an analysis of alternatives to standards and what the difference in energy savings would be in those cases.

Now this is standard procedure for all rulemakings, but as always DOE seeks input on its plans

to follow this approach, and in particular the continued use of the NEMS model to come up with utility impacts and other impacts. That's one of the comment boxes here, and on DOE's plans to assess national employment impacts, both direct and indirect, if there are other tools that might be at its disposal to do a better job of this. DOE has been using the same jobs model for a number of years, and also comments on DOE's continued use of the NEMS model for environmental impact assessment of its products.

MR. BROOKMAN: So many of you are familiar with these methodologies. Comments, anything about wine coolers and related products that would cause the Department to do something different? I don't see anything there.

Closing Remarks

MR. GREENBLATT: I think from Lucas?

MR. BROOKMAN: As we promised at the outset, an opportunity for anybody that wishes to raise additional issues, something you don't think has been covered sufficiently at this stage, so let's do that now. I guess there's nothing additional. Then, from my part, I would just thank all of you. I thought we had a very productive conversation, very efficient this

morning. And turn it back to Lucas Adin for closing remarks.

MR. ADIN: Just a few additional administrative things to cover here. The comment period at this particular stage of the rulemaking is open until March 14, 2012, so if you have additional written commentary you'd like to provide, please provide it by that date. There is an email address on this slide, which is where you can send it, or you can mail it in. There's an address there as well. For that purpose, please reference the rulemaking by the docket number that's listed there, and/or the regulatory identification or RIN number.

And that's about it as far as administrative things. I'd also like to extend DOE's thanks for your participation today. It's very important to the rulemaking process and we really appreciate any information you're able to provide and any additional comments.

MR. BROOKMAN: We should also acknowledge and thank those that have joined us via the web.

MR. ADIN: Yes.

MR. BROOKMAN: Something the Department wishes to make available to anybody and so glad you could join us.

MR. ADIN: Yeah, I hope that's been useful. If you have comments about how well that particular functionality is working, or any suggested improvements, we certainly welcome those too.

MR. BROOKMAN: Safe travels everyone.

(Whereupon, at 12:10 p.m., the meeting in the above captioned matter was adjourned.)

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before:

U.S. DEPARTMENT OF ENERGY

In the Matter of:

PUBLIC MEETING ON ENERGY CONSERVATION STANDARDS FOR WINE CHILLERS AND MISCELLANEOUS REFRIGERATION PRODUCTS

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: February 27, 2012