U.S. DEPARTMENT OF ENERGY

PUBLIC MEETING ON ENERGY CONSERVATION STANDARDS FOR REFRIGERATED BOTTLED OR CANNED BEVERAGE VENDING MACHINES

U.S. Department of Energy
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Attendees

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P R O C E E D I N G S

(9:00 a.m.)

Welcome

MR. BROOKMAN: So I believe we should reward those of you who were here on time. I appreciate that. Thanks very much.

Good morning, everybody. Welcome. My name's Doug Brookman from Public Solutions in Baltimore.

This is the U.S. Department of Energy's Public Meeting on Energy Conservation Standards for Refrigerated Bottled or Canned Beverage Vending Machines.

Welcoming Remarks by Victor Petrolati.

MR. PETROLATI: Good morning. My name is Vic Petrolati. I'm the Acting Supervisor this week for the Appliance Standards Program, sitting in for Ron Lewis, who is the Supervisor for the Appliance Standards Program.

First of all, I want to welcome you to Washington, D.C., today. You caught us on one of our typical summer days, warm, humid, most likely rain this afternoon.

So we're very pleased that you could attend today. We're looking forward to a very productive meeting this afternoon, today and this morning. We're

certainly hopeful that we can gather all of the information we need to our rulemaking process. I understand this is an industry that has a significant participation with the EnergyStar Program. So you've already made in many cases a lot of technology improvements to improve energy efficiency.

Again, I want to thank you for attending today and I appreciate the assistance that you're providing us in this rulemaking process.

Thank you.

Opening Remarks, Introductions and Agenda Review

MR. BROOKMAN: Let me do Introductions. Okay. And then I'll give the Overview. Okay.

So it's our custom to provide an opportunity for each person to introduce him or herself. Please say your name and organizational affiliation and then we'll do a brief Agenda Review and then we'll have an Overview. Your name and organizational affiliation. We'll move around the room.

MR. McGARRAH: Bob McGarrah, USA Technologies.

MR. COUSINS: I'm Steve Cousins with Coca-Cola Company.

MR. ROSENSTOCK: Steve Rosenstock, Edison Electric Institute.

MR. SACHS: Harvey Sachs, American Council for an Energy Efficient Economy.

MR. FERNSTROM: Gary Fernstrom, recently retired from and representing the Pacific Gas and Electric Company.

MR. ECKMAN: Tom Eckman, Northwest Power and Conservation Council.

MR. BERG: William Berg, Natural Resources Defense Council.

MS. TARLEY: Nina Tarley, PepsiCo.

MR. SELFRIDGE: Glenn Selfridge, Royal Vendors.

MR. ROTH: Trent Roth, Dixie Narco.

MR. MATHIS: Tim Mathis, Dixie Narco.

MR. HARACH: Rick Harach, Dixie Narco.

MR. STAS: Eric Stas, DOE General Counsel.

MR. LLENZA: Charles Llenza, Project Engineer for Department of Energy.

MR. BROOKMAN: Vic introduced himself. Please.

MR. MILLARD: Matt Millard from Navigant.

MR. MARANTAN: Aris Marantan, Navigant.

MR. SOMASUNDARAM: Sriram Somasundaram, Pacific Northwest National Laboratory.

MR. SCOTT: Mike Scott, Pacific Northwest

National Laboratory.

MR. PARKER: Graham Parker, Pacific Northwest National Laboratory.

MR. McMAHON: Tom McMahon, NAMA.

(Introductions Off Microphone.)

MR. BROOKMAN: Thank you. I think all of you received a packet of information when you came in the door and I think all of you, each of you, registered as well. That's helpful for the department to know who's here.

In your packet, there's a copy of the Agenda. I'm going to take a quick review of that right now. This is the plan for the day.

Following this Agenda Review, we're going to have a Rulemaking Overview by Charles Llenza. Following the Overview segment, there's an opportunity for any individual that wishes to do so to make brief summary comments. You can see that in the 9:30 to 10 o'clock slot, Comments from Participants.

Following that, we'll have an Overview of Engineering Analysis. We'll take a break midmorning, round about 11:15 or so. Following the midmorning break, we'll have a detailed description of the Life-Cycle Cost Analysis. Following that, we'll take a break for lunch.

As I understand it, the major cafeteria has now shut down. That's what the AV guy told me. So we're going to have to make some other arrangements for lunch or something. There will be food somewhere. We do know that but it may not be as simple as it typically is.

Following lunch, we'll have a Description of National Impact Analysis and the segment on your agenda that says Discussion of Other Issues, we're going to move that to the end of the day. We'll take a break midafternoon around about 3:30. Then we'll do a Description of the NOPR Analyses and then following that, there's another opportunity for any of you to make comments, summary comments, raise other issues that haven't been raised so far, and then we'll after a Description of Next Steps and Closing Remarks, and we'll adjourn today no later than 5 o'clock. We may make it out of here earlier than that. It's a possibility.

Questions and comments about the agenda?

(No response.)

MR. BROOKMAN: In particular, anything that you think -- anything that you would like to accomplish that won't fit in the framework provided here?

(No response.)

MR. BROOKMAN: Okay. I see no additional comments on that.

I'd ask for your consideration. What has emerged over many years at these public meetings is what I think is common courtesy. I'd ask simply that you speak one at a time. Please say your name for the record. I'm going to be queuing you as best I can by name. You don't need to repeat your company name every single time. Just your name for the record.

Please keep the focus here. Put your cell phones on silent mode, if you would, please, at this time. If you need to have a sidebar conversation with someone for more than about 30 seconds, we'll understand you taking it out of the room, and as I said, I'm going to be queuing people by name as best I can and also I wish to encourage follow-on comments, but please do for the completeness of the record, there's a court reporter present, there will be a complete record of this meeting, please say your name every time you speak. That will make it easier for everybody.

I think that's all I have. So then an Overview by Charles Llenza.

Rulemaking Overview

MR. LLENZA: Welcome to the Department of

Energy and in case somebody doesn't know where they're at, we are at the Beverage Vending Machines Advance Notice of Proposed Rulemaking Public Meeting here at the Department.

The basic purpose of our meeting today is to present the Department's methodologies and to characterize the results, to discuss the specifics on the analysis, to seek your input, to describe our downstream process, and the next steps.

This is our agenda for today and as you can see it's a full agenda.

The Energy Policy and Conservation Act directs the department to consider seven factors when setting energy conservation standards. These seven factors provide us with the related steps for our analysis.

This is the flow diagram of the Advance Notice of Proposed Rulemaking process and we will be discussing several of these segments here today. Basically, they are: the Engineering Analysis, the Life-Cycle Cost Analysis, the NIA. Our primary goal here is to achieve our issuance date of August 2009 for the Energy Conservation Standard to be published.

We're seeking issues for public comment here on these eight different categories. We're seeking

information on equipment classes, operating hours for the compressors and the lighting, the refurbishment cycles, the life-cycle cost baseline, the base case and standard case forecasts, impacts of future shipments, candidate standard levels, and characterization of energy conservation standards.

The participants are more than welcome to provide your summary comments in your statements and are invited to raise additional issues in the discussions today. There will be several points in the agenda where that will be allowed.

Also, I wanted to make everybody aware that our comment period is through July 16th of this year.

That's all I've got.

Comments from Participants

MR. BROOKMAN: The department likes to provide an opportunity for anybody that wishes to do so here at the outset to make a brief summary comment about issues that you would like to raise for the record and presumably many of these issues will be taken up and dealt with in more detail as the day goes on, and one or two individuals have requested the opportunity to speak and then anybody else that wishes to do so is encouraged also to do so.

So Bob McGarrah from USA Technologies has

requested the opportunity to speak. These comments, please, if you would, two, three, no more than five minutes.

MR. McGARRAH: Bob McGarrah, USA Technologies.

We met here in 2006 in this exact room. The average cost of gasoline was 2.95 a gallon. The average commercial energy cost was 8.8 cents per kilowatt hour. Two short years later, you can tell how long ago I wrote this, the average cost of gasoline is $3.82. We know that’s over $4 in just two weeks between the time I wrote this and the meeting. The average commercial electrical cost is 1.5 cents per kilowatt hour.

Global energy crisis is a serious and growing concern. There’s no way we’re going to back to the way it was. The demand for energy is rising, supply is dwindling and forcing record prices.

Fundamental changes are necessary. We’re beginning to take those actions. We should have taken the actions a little sooner but we are making some progress.

The Department of Energy has been working hard on this problem for quite awhile. The actions that we take today will benefit us tomorrow which

brings me to why I'm here. I'm a senior energy consultant for USA Technologies, a company that develops energy management technology for refrigerated vending machines, coolers and other commercial appliances and equipment.

The company's Energy Miser technology has the capability of reducing vending machine energy consumption by as much as 46 percent. Now we know that there's an estimated 4.2 million refrigerated vending machines in the U.S. and over 10 million coolers.

Our studies have shown that if all of these 4.2 million refrigerated vending machines were equipped with Energy Miser products calculated at 40 percent savings, the approximate annual impact would be $500 million a year. That's $4.2 million a day. That's what it costs us today to operate our vending machines, about a dollar a day per machine.

It eliminates three million tons of coal and it's more than enough energy to operate a half a million homes and that's based on only 4.2 vending machines, not on coolers.

I know this conference is focused on improving the efficiency of vending machines only. We're not focused on other similar energy consumers, such as refrigerated glass-front coolers, but let's

make it very clear. The energy savings from the Energy Miser technology and other technologies, it's applied to vending machines and can be applied directly to coolers. This is obviously a subject for a different time, but it's something that we need to keep in mind and we should prepare for it.

This conference is also focused on regulating only new vending machines and not the 4.2 million vending machines already installed nationwide.

USA Technologies Energy Miser line is all-embracing, delivering energy savings in all forms for vending machines, from technology installed on new machines to technology installed on remanufactured machines and machines already on location in the field.

Each installed vending machine can cost upwards of $400 a year to operate. We call it a dollar a day. Our Energy Miser technology can cut that cost by nearly half and certainly by 30 percent. It will also lower energy consumed in new EnergyStar machines by approximately 10 percent.

Now to the credit of the folks that make these vending machines, they're already meeting for the large part Tier 2 EnergyStar standard and we can take 10 percent reduction on that. So we are working on it, the industry is working on it.

USA Technologies has approximately 200,000 of our products in the field, some of them for more than 10 years. It's a proven product with an excellent record of accomplishment. EnergyStar has tested the Energy Miser products. USA also had a test at Foster Miller. Some of you are familiar with Foster Miller, but they're the same organization that developed the Bradley Tank Armor during Desert Storm 10 years ago, and they're currently making a bomb robot device for the U.S. Government to address some of the bombing issues in Iraq. They also conduct testing for Pepsi, Frito-Lay and other major corporations.

So the Energy Miser is a proven product and it also extends the life of machines, reducing wear and tear, cost of maintenance and results in fewer machines ending up in landfills prematurely.

Energy utilities nationwide are also validating the Energy Miser product line. Forty-four major utilities offer rebates on the Energy Miser line. Another four utilities offer turnkey service. They purchase the products directly from us and install them free to their customers' equipment. This helps the customer lower their energy consumption, obviously lowers the customers' cost of energy, and it also lowers the demand on the national grid and that's the

key thing that the energy companies are looking for: get requirements off the grid so we don't have to build another power plant.

One of our larger and more successful and most innovative companies is a company many of the folks in the Energy Department know, Austin Energy. Austin Energy bought over 5,000 of our products and they immediately saw the advantage of implementing the energy control technology, both for vending machines and they're also installing it on coolers.

They have a Smart Vendor Program. They're saving over a quarter of a million dollars, starting to approach a half a million dollars, annually. That's 7,380,000 kilowatt hours of energy annually, and it's 4,775,000 tons of CO2 that doesn't go into the atmosphere.

Energy conservation companies, such as USA Technologies, are designing and providing unique beneficial energy management and conservation technology for the United States and the world. We're selling products in Australia and overseas, also.

These companies, such as USA Technologies, often do not have the resources to promote their products. Conferences such as this help promote those vital small businesses. Those businesses are working

to help lower America's energy use for future generations, lessen the drain on the national power grid and lower our dependence on foreign oil, and I think that's kind of hitting us between the eyes today with $4 gas.

This is a huge national opportunity not only for vendors but also for coolers. You know what the costs are doing since we met the last time. We're up quite a bit and I wouldn't even render a guess at what it will be by the time these standards are implemented.

Two years ago, companies conserving energy were largely those who wanted to do the right thing and impact the environment. Today, many companies are installing products for bottom line savings, for business survival.

We all know that other energy conservation technologies are available today and I think some of the folks from the manufacturers will talk about that.

What product has a return on investment of less than a year, a life expectancy of up to 15 or more years, and returns up to 46 percent energy savings year after year? I can't think of any. We're all feeling the pain of the energy crisis but we're headed in the right direction.

We need to address the vending machines. We

need higher energy efficiency from our vending machines and we also must consider the installed base of 4.2 million machines that are costing us $4 million a day to operate.

With that, we should look at the coolers, and I know I'm running over time.

MR. BROOKMAN: So finish it up.

MR. McGARRAH: Thank you very much for your attention. Thank you for allowing us to participate in this conference.

MR. BROOKMAN: Thank you. So others that wish to make brief summary remarks at this point? Yes, please. Trent and then Nina.

MR. ROTH: Trent Roth.

MR. BROOKMAN: And thanks to all of you for sticking your face right close to these mikes. That's a requirement to get this all on the record. Thanks.

MR. ROTH: I'll make it very brief and short. I just want to thank everybody for the opportunity to be here today.

One thing that needs to be understood really in our industry, this industry has made great strides since 2004. Actually, when you look at some of our products from 2003 to today, which is five short years, in both stacks and closed-front machines, as you call

them, and glass fronts, we've made strides in both platforms of saving energy of over 50 percent. I think that's very renowned in this industry. We've done that through technology and looking at various technologies.

That's been in partnership with our bottlers who are very supportive of driving energy savings and this has really been an industrywide piece. I mean, we want to say that we're behind this and we're very supportive of moving forward.

As relates to this legislation here, we have -- we're very supportive of it. We understand that some of the rulings just came out recently, so we've analyzed some of the methods in the last days, as well as some of the standards in which it references to such as 32.1 of ASHRAE are yet to be defined but are getting very close to being defined. So there will be some topics on there as well.

In regards to some comments that Bob has made, we understand that there's opportunities of sometimes looking at older products for using a technology, such as a Ven Miser, or some type of technology, but as we look to new technologies, we need to be very careful because it can conflict with energy savings considerably as we look at technologies.

A vending machine is a very smart piece of

equipment. It has a control board in it. We have the ability to do all sorts of things with it, regulating, and when we do that, when an outside piece is added to it, it can conflict, it actually can drive higher costs of energy rather than what the machine is put towards. So we want to be careful in that implementation.

The other statement I would make is by 2012, when this comes out, when we look at the life expectancy of a vending machine to be about 10 or 12 years, it will mean the vast majority of the vending machines that are still out in the marketplace at that time will meet EnergyStar. They will meet the -- they will already have been EnergyStar since 2004 and the majority of what we sell today is EnergyStar and will continue to move towards that and drive towards that.

So we just want to really make it clear that, you know, we’ve come a long ways as an industry and we can apply a lot of the same technologies we’ve done with software today and other elements into our vending machines as they’re refurbished. A lot of vending machines tend to be refurbed one or two times during their lifetime and life expectancy and we have been working with kits, we have applied to EPA for these kits, of applying really less expensive technology that drives a lot of energy savings as these machines run

through.

So I just want to make that as a quick statement and I'm sure we'll have a lot of debate later.

MR. BROOKMAN: Thank you. Nina?

MS. TARLEY: Nina Tarley, PepsiCo.

MR. BROOKMAN: Thank you.

MS. TARLEY: I wanted to refer to the documents that was sent to all of us prior, a couple of weeks before the meeting. It's the Federal Register. Specifically, I'm referring to the Page 34,111.

MR. BROOKMAN: You want to state that number again.

MS. TARLEY: Yes. Specifically, I want to refer to the paragraph under the Section B, Energy Consumption Model, where reference is made to the ASHRAE Standard 32.1.

I don't know if that's on the agenda to be discussed, but I merely want to point out there is an addition to the standard that the lights for the machine during the energy testing have to be on for 24 hours and I would like to make sure that this will be discussed during the meeting today because it's very important.

The methodologies that we use to test the

equipment, we have to be totally aware that, as my esteemed colleague just said, all companies are making so many strides towards energy consumption and usage of energy, that the methodology is very critical. It has to reflect reality of what's out there and has to reflect the fact that everything is done, including controlling the lights, energy consumption, all kind of energy management devices, should be part of the methodology.

MR. BROOKMAN: Thank you. So you make sure to raise it in the event it doesn't get raised in another place. Okay? We'll discuss it in detail.

Okay. So then other brief summary comments here at the outset?

(No response.)

MR. BROOKMAN: Okay. I see no additional comments at this time.

Then let's proceed with a description of the Engineering Analysis. Aris, are you starting this off? Matt is. Okay.

Engineering Analysis

MR. MILLARD: Thank you for your comments. Good morning. My name is Matt Millard, and I will be discussing the Engineering Analysis steps and our analyses.

As Charlie showed earlier, the beginning steps of our analyses are the market and technology assessment, the screening analysis, and those lead into the Engineering Analysis.

The market and technology assessment is where we characterize the market, and look at the efficiencies of equipment that's currently out there and existing regulations. The screening analysis is where we look at various design options that are available for the equipment, and we use four basic criteria that DOE has laid out to evaluate all those design options, and then from there, we go into the Engineering Analysis which is where we develop some cost efficiency relationships, evaluate these design options, and perform various sensitivity analyses.

From the market and technology assessment, we were able to determine that 75 percent of the market is dominated by three manufacturers, those being Dixie Narco Crane, Sandi Vendo and Royal Vendors. We estimated an installed base of approximately 3.7 million. This is from 2006. As Bob said earlier, it's 4.2 currently. Then we estimated that about 340,000 units are shipped annually.

In our screening analysis, as I said before, we evaluate design options by four various criteria

laid out by the Department of Energy and those are: technological feasibility - we will only evaluate technologies in our Engineering Analysis that have gone into the prototype stage that are currently used in the industry; the practicability to manufacture, install and service; the adverse effects on product utility or product availability - if it’s going to limit the availability of the equipment in the industry, then we will screen those design options out; and adverse impacts on health and safety.

Here are shown the technologies that have made it through the screening process and have met these four requirements. These are all laid out in the ANOPR and described in the TSD.

From here, I will let Aris Marantan talk you through the Engineering Analysis.

MR. BROOKMAN: Matt, since it’s -- why don’t you just read them so they’re in the record? Okay?

MR. MILLARD: The design options?

MR. BROOKMAN: Yes.

MR. MILLARD: Higher efficiency lighting and ballasts, higher efficiency evaporator fan motors, evaporator fan motor controllers, improved evaporator design, insulation improvements or thickness increases, improved glass pack (this is only for Class A machines

only, and we'll get into what Class A is in the next -- with Aris's presentation), higher efficiency condenser fan motors, improved condenser design, and higher efficiency compressors.

MR. BROOKMAN: Thank you. Yes, Steve Rosenstock?

MR. ROSENSTOCK: Steven Rosenstock, EEI. Under higher efficiency lighting and ballasts, does that category include lighting controls?

MR. BROOKMAN: I think Aris is going to answer that question.

MR. MARANTAN: Yes, Aris Marantan. That category does not include lighting controls. It's only specifically addressing the lighting technology itself.

MR. ROSENSTOCK: Thank you.

MR. BROOKMAN: Yes, please, Gary.

MR. FERNSTROM: Gary Fernstrom. Does lighting include light emitting diodes as a technology?

MR. MARANTAN: Yes, it does.

MR. FERNSTROM: Thank you.

MR. BROOKMAN: Thank you.

MR. MARANTAN: Okay. Continuing on with the Engineering Analysis Section of this presentation, we get into the development of the cost efficiency relationship.

The purpose of the Engineering Analysis is to characterize the relationship between manufacturer cost and higher levels of efficiency. So as you can see from this graph, this is a representation of this relationship.

As equipment tends to increase in efficiency, of course, manufacturing costs will increase as well. This relationship for cost and efficiency is used for downstream analyses. It's the basis for the cost and benefit analysis the Department uses to establish their energy conservation standards.

Some of these downstream analyses include the Life-Cycle Cost and Payback Period Analysis as well as the National Impacts Analysis that we'll be summarizing today.

MR. BROOKMAN: Yes, Harvey Sachs?

MR. SACHS: Harvey Sachs, ACEEE. I just want to note for the record that the graph to the left on Slide 7, Cost Efficiency Relationship, is a simplified mental model which in the real world has many exceptions under many conditions.

For example, if we had a high efficiency standard and that was the major product being delivered, we would expect to special order the low efficiency unit to actually cost more than the mass

manufacture high efficiency unit.

So this is introduced so frequently as a metaphor in the department's rulemakings that we think it's important to introduce the fact that this is a metaphor only. It ignores the time dimension of improvements to manufacturing processes and technology innovation, special order situations, and a lot of other things, and frankly it's not always clear that it's a terribly helpful metaphor.

Thank you.

MR. BROOKMAN: It's meant to be illustrative. Mike Rivest?

MR. RIVEST: Mike Rivest, Navigant Consulting. To expand on what you said, it's not a metaphor. It's actually a construct, an analytical construct whereby we assume that a market is entirely moved from one efficiency level to the next and where the production volumes are kept constant.

So for example, it's quite possible that a more energy inefficient product is more expensive today if it's at low volumes. So I agree with you on that, but the construct here is an assumption that if a million products are built today at efficiency X, then at efficiency X+1, if that's the standard level, all one million units go to that level. So actually, the

construct is consistent to the objectives of the rule.

MR. SACHS: Thank you very much. I really don't want to belabor this. It's something that Mr. Rivest and I have chatted about as well as many others, but certainly the record of DOE rulemakings on other products is quite clear, that in many cases, changes in efficiency have led to declining prices in the market as paid by consumers and in the manufacturing cost as well.

MR. BROOKMAN: Thanks for raising it. Other comments here before we proceed?

(No response.)

MR. BROOKMAN: Okay.

MR. MARANTAN: Okay. This slide is meant to describe the equipment classes that are analyzed, starting with the Engineering Analysis and continuing to all of the downstream analyses as well.

For this rulemaking for vending machines, we have equipment classes broken down into Class A machines which are fully cooled machines and Class B machines which are any machines not considered to be Class A.

The analysis itself is broken down into three representative sizes for each equipment class, so we have a small, a medium and a large vending machine that

we've analyzed for each of the classes, Class A and Class B.

The Engineering Analysis is conducted in a design options approach and the definition we're using for the design options approach is that it uses individual or combinations of design options to identify increases in efficiency.

So under this approach, estimates are based on manufacturer or component supplier data or through the use of engineering computer simulations. So therefore individual design options or combinations of design options are added to the baseline model in ascending order of cost effectiveness.

Okay. This slide describes in a little more detail each step of the Engineering Analysis design option approach. We start with the baseline specifications for each equipment and class. Basically, we analyze the market to identify what the baseline equipment features and characteristics are for each equipment class and we took the most typical characteristics and used that as a description of the baseline equipment.

From there, we use a model of production costs and energy consumption which are two independent models to describe both dimensions on our cost

efficiency curve. For manufacturer production costs, we developed a cost model which is based on a tear-down of a commercial refrigerator type of machine which has similar features to vending and all of the design options and baseline characteristics of vending machines, and we also use an energy consumption model which is based on the test procedure used for calculating the energy consumption of vending machines.

From there, we implemented the design options one by one in order of increasing effectiveness and in this case, we're using from shortest payback to longest payback, that's simple payback, to order the design options, and then from there, the incremental costs of each design option is added and then we recalculate the calculated daily energy consumption, the CDEC, and finally we include a mark-up of the manufacturer production costs. This gives us the manufacturer's selling price for our curve.

Okay. This slide describes the energy consumption model in a little more detail. Basically, there are two major parts to the energy consumption model: the compressor energy consumption which takes into account the total heat load of the machine, and then the component energy consumption which is all of the electrical-consuming components of the machine.

Just going through this, the total heat load includes component loads and non-electric loads. I'll just read these off. These include the fan motor heat load, the lighting heat load, the radiation load conduction and infiltration loads as well, and for the component energy consumption, that includes the fan motor energy consumption and the lighting energy consumption.

So all of these components are included in the energy consumption model to calculate the CDEC, the calculated daily energy consumption.

Okay. Now the other model we use is the cost model. This is a cost model adapted from DOE's rulemaking on commercial refrigeration equipment due to the similarities in manufacturing process between self-contained commercial refrigeration equipment and vending machines.

So here we have the full production cost estimated from the cost model. Added to this is the manufacturer mark-ups or non-production costs and that gives us the selling price of the equipment.

Now please keep in mind that these manufacturing mark-ups are separate from the distribution channel mark-ups which are explained in the next section. When we include the distribution

channel mark-ups, that is then the purchase price of the machine.

Okay. The next two slides give you an idea of the types of curves that we can generate using each of these models for the Engineering Analysis. This one happens to represent the Class A machines results. There are three lines here representing a small, a medium and a large size machine for Class A, and the next slide are similar results for the Class B machines for small, medium and large.

Before I continue, the full results of these are in the Technical Support Document, so you can look those up if you like.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. Just the navy blue is small, the red is medium, and then the yellow is large? Is that --

MR. MARANTAN: Yes, I do believe that’s correct.

MR. ROSENSTOCK: No labels. It makes it easier.

MR. MARANTAN: Yes, so I’ll reiterate. The blue is for small, the pink, the middle line there, is medium, and the yellow, the top line, is for large.

Thank you.

MR. BROOKMAN: Charles Llenza.

MR. LLENZA: We'll make corrections when we put the slides on the website.

MR. BROOKMAN: Just that addition.

MR. LLENZA: Right.

MR. BROOKMAN: Okay. Thank you.

MR. LLENZA: Thank you for that question.

MR. BROOKMAN: Yes, Sriram?

MR. SOMASUNDARAM: Sriram Somasundaram, PNNL. Just another clarification in terms of the sizes that Aris is talking about. The details of the sizes, the capacity of the refrigerated volume of the three sizes and the two classes of the machines are on Page 34 and 35 of the Federal Register.

MR. BROOKMAN: Thank you. I think it also would be a nice addition to the posted version. Okay.

Yes, please. Your name for the record.

MR. COUSINS: Steve Cousins, Coca-Cola. I don't think it will make any difference with regard to results of the Engineering Analysis.

I'm looking at the energy consumption model. I see it does not include the moisture load, at least I don't think moisture load is included in the calculation. It can account for up to 12 percent of the energy consumption in a machine, but even if it

wasn't included in the analysis, I don't think it changes any of the results that you've done.

MR. BROOKMAN: So what are you advocating?

MR. COUSINS: What I'm advocating is that, depending on the size of the machine, the impact of the moisture removal that has to take place, the energy that has to be consumed in the moisture removal, may shift some of these curves closer or further apart.

MR. BROOKMAN: Okay. Additional comments on this set of slides?

(No response.)

MR. BROOKMAN: Okay.

MR. MARANTAN: Okay. Thank you.

MR. ECKMAN: Doug?

MR. BROOKMAN: Yes, Tom Eckman.

MR. ECKMAN: Just a clarification. My reading was that there was humidity data in the energy consumption model. So is that --

MR. BROOKMAN: Sriram?

MR. ECKMAN: -- accounted for or not?

MR. SOMASUNDARAM: This is Sriram. The issue that Steve Cousins is referring to is the maintenance of a certain humidity level inside the machine.

MR. ECKMAN: In the equipment itself, not just the --

MR. SOMASUNDARAM: In the equipment, not just the --

MR. ECKMAN: -- compressor.

MR. SOMASUNDARAM: But we do account for the outdoor conditions, where the machines are installed outdoors, in varying temperatures and relative humidity, whereas the indoor machines are presumed to be exposed to constant conditions, 75 F, 45 percent relative humidity, according to the test conditions of 32.1.

So I believe you're referring to how you bring the air temperature and humidity down to the inside conditions.

MR. BROOKMAN: That's Steve commenting, yes.

MR. SOMASUNDARAM: Yeah. There's an additional energy consumption because of that, that was very difficult to account for it in our energy model.

MR. BROOKMAN: Okay. Any additional comments on this section on Engineering Analysis?

(No response.)

MR. BROOKMAN: Okay.

Life-Cycle Cost Analysis

MR. SOMASUNDARAM: Good morning. My name is Sriram Somasundaram, as I've already introduced myself, from the Pacific Northwest National Laboratory.

As part of the Life-Cycle Cost Analysis, I will introduce the Energy Analysis, Energy Use or Energy Consumption Analysis first, and then also talk about the mark-ups that Aris referred to, and then my colleague Mike Scott will talk about the Economic Analysis itself and further on that.

So the three elements or the three steps in the Life-Cycle Cost Analysis are the mark-ups, the energy use characterization, and then those provide inputs to the Life-Cycle Cost and Payback Period Analysis which comes next.

The purpose of the mark-ups is to basically translate or convert the manufacturer’s selling price of the equipment to the customer price or the final price that the customer pays, and the way we account for the mark-ups is through two elements.

One we call the baseline mark-up which is the mark-up that is applied to the baseline efficiency equipment, and then we calculate also an incremental mark-up that’s applied on top of that, on top of the baseline mark-up for higher efficiency equipment.

In other words, so that we can account for what is the mark-up to the price, customer price of a baseline efficiency equipment and then incremental mark-up to the higher efficiency equipment.

The Energy Use Characterization Analysis in this case basically develops the electrical energy consumed by each machine over a 24-hour period which is the test metric and the test procedure ASHRAE Standard 32.1, the daily energy consumption, and for the purposes of doing the Energy Use Analysis here, we basically translated the Engineering Analysis model that Aris described earlier to be able to vary the ambient temperature.

Because the engineering model was originally developed only to be operated at the two rating conditions, 75 and 90 degrees F, we had to make some modifications to the model to be able to run at varying ambient conditions, both temperatures and relative humidity, and I'll describe the details later.

The final step in this section is the Life-Cycle Cost and Payback Period Analysis where we basically, with all the inputs of the energy consumption and hence the energy cost by multiplying by the electricity price, we calculate the life-cycle cost to the customer of operating this equipment over a year and also over the lifetime of the equipment and we also, for the purposes of payback period analysis, we also calculate a simple payback of what it takes, how long it takes for the investment of procuring a higher

efficiency equipment, how long it takes to pay off that investment.

MR. BROOKMAN: Yes, Bob?

MR. McGARRAH: Bob McGarrah. One comment on paying back the investment. Seventy-five percent of the machines that are purchased from the manufacturers are owned by Coke, Pepsi and the other large bottlers. They don’t pay the energy costs, so they never get a payback.

MR. COUSINS: Steve Cousins here. That’s only partially true. We may not pay the energy costs directly, but the energy costs may be rolled into the cost of the product that we sell our account customers. So it may not be direct compensation. There’s compensation, but it may not be directly to the power companies.

MR. BROOKMAN: Thank you.

MR. COUSINS: It’s very difficult to calculate exactly what that percentage is, however.

MR. SOMASUNDARAM: Should I continue?

MR. BROOKMAN: Yes, please do, Sriram.

MR. SOMASUNDARAM: So the details on the mark-ups is -- the purpose again -- to reiterate, the purpose of the mark-ups determination is simply to determine the customer price on both a standard

scenario based on the manufacturer selling price and also to determine the incremental customer price that they would pay for a higher efficiency equipment.

The way we do this is by characterizing a distribution channel for how the machines might be sold and also determine what the percentage of shipments are through each of the channels and the inputs to the mark-up itself are basically the firm balance sheets and we use the Census Bureau financial data for determining the wholesale mark-up.

The output again of this analysis is the baseline and incremental mark-up.

This slide basically just lays out the three distribution channels that we assumed these machines are sold through and the percentages at the bottom of each column are the estimated fraction of equipment shipments through each of those channels and so we presume that channel 1, which is a direct sale to the bottler or distributor, is about 68 percent of the total shipments.

The second channel, which we assume that the manufacturer sells to an equipment wholesaler or a distributor and then to a vending machine operator or a vendor, constitutes about 27 percent of the shipments.

The last channel is a very small market where

the site owner where the machines are installed themselves own the machine and stock the machine which is only about five percent of the market.

MR. BROOKMAN: Yes. So I'd like to obtain comments on this slide, particularly confirming or changing the assumptions that are in play on this slide.

Yes, please, Glenn.

MR. SELFRIDGE: Glenn Selfridge, Royal Vendors. I believe that the channel 1 is significantly higher. The channel 2, at least for the ones that I work with for now, the percentages skew very much in the direction of channel 1.

MR. BROOKMAN: So what would you --

MR. SELFRIDGE: Along that same line, 350,000 machines for 2 is way too high, way too high.

MR. BROOKMAN: So what would you say the numbers would likely be for channel 1, channel 2, channel 3?

MR. SELFRIDGE: For channel 1, that's going to be around 85 to 90 percent, and channel 3, we don't allow. I guess it could be sold from us to a wholesaler.

MR. BROOKMAN: That's through your company, though?

MR. SELFRIDGE: Yeah.

MR. BROOKMAN: Okay. So how about some of the other companies in the room? Comments on both the channel and also the figures that are here? Go ahead, Trent.

MR. ROTH: This is Trent Roth. I would concur. We're probably more around 80 to 85 percent for channel 1 today. The industry's changed a little bit in the last few years.

We do -- probably if you did that, you're probably 13 percent would have channel 2. We do some channel 3 occasionally. So, I mean, there is, especially with the advent of some outlying products out there today, there is some opportunities to do that.

So, I mean, probably today, I'd say 85, 12 and 3.

MR. BROOKMAN: Okay. Thank you. That's very helpful for the Department. Bob?

MR. McGARRAH: Bob McGarrah. While we have the two major manufacturers in the room, without giving away trade secrets, you wanted to change the number downward from the 373-380,000 machines produced a year. You guys want to caucus and come back with a reasonable number that would make sense for the two of you?

MR. BROOKMAN: Or you could submit --

MR. McGARRAH: No?

MR. BROOKMAN: -- in your written comments, either one. Steve, go ahead.

MR. SELFRIDGE: This is Glenn Selfridge. EPA has our shipping data.

MR. BROOKMAN: Okay.

MR. COUSINS: Steve Cousins. I was going to point out that NAMA also has that shipping data. I know we've shared it in the past with the intent or with the expectation that NAMA would share that information.

MR. BROOKMAN: So they simply abrogate it or something?

MR. COUSINS: Yeah.

MR. BROOKMAN: Okay. Great. Yeah. Aris?

MR. MARANTAN: Aris Marantan. I just want to be clear. I may have heard, Glenn, you say something about this equipment class and then your response to the distribution channels.

Is it for a specific equipment class or for both?

MR. SELFRIDGE: It's for both.

MR. MARANTAN: Okay. Thank you.

MR. BROOKMAN: Thank you for that

clarification. Okay. Steve?

MR. COUSINS: Steve Cousins. A challenge, and I don't have a number to put out there, unfortunately, around vending machine population.

It's my impression that overall, the vending machine population in North America has been shrinking and not growing. I guess I can only speaking for the Coke system. I know the Coke system has removed something like 200 to 250,000 vending machines from the marketplace over the past -- since we had this meeting here last time.

So the assumption that the numbers are going up is not the case.

MR. BROOKMAN: Charlie Llenza.

MR. LLENZA: What kind of percentage of the market are the amount of machines taken out?

MR. COUSINS: What percentage of the marketplace does Coca-Cola represent?

MR. LLENZA: No. What percentage of the machines are you -- is that 25 percent?

MR. COUSINS: I'm not going to tell you that in this forum. But the number is going down.

MR. STAS: Eric Stas, DOE. Is this a long-term trend or is this something cyclical in which you expect the numbers to fluctuate back up?

MR. COUSINS: It's hard to tell what the future -- the reason why the machines are being removed from the marketplace is because the profitability model is changing and it's based in large measure on consumer expectations, what they expect to pay for a product. There's also a so-called artificial price barrier, a ceiling that we're running into.

Consumers are hard-pressed -- they don't like to spend more than a dollar for a product coming from a vending machine. What that does is that forces you to -- it forces us to look for ways to manage, to keep our operating costs down. That's not always the case, but what happens is the profitable throughput for a machine has been shrinking year by year. So the number of cases of product that we have to pass through a vending machine to realize some profit is actually going up and we're not -- and actually, we're seeing lowered purchases or sales from vending machines.

So it's kind of forcing us to take machines out of the marketplace to keep full service vending a good proposition for us.

MR. BROOKMAN: Thank you for that. Nina?

MS. TARLEY: Nina Tarley. I just for the record want to say that I totally concur with what Steve just said. Yes, the total number is going down.

Probably the only thing I would add to the questions, the reasons, one of them is vandalism, very high cost of vandalism.

MR. BROOKMAN: Could you, responding to Eric's question, could you say whether it's cyclical or it's a one-time phenomenon or it's just a trend line or what?

MS. TARLEY: From my opinion, it's not cyclical. It's happening and I don't see it reversing.

MR. BROOKMAN: Yeah. Okay. Thank you. Bob?

MR. McGARRAH: Bob McGarrah. Doing the quick math, if Coke pulled 250,000 out of the system and we're buying 350,000, it sounds like Pepsi pulled out a 100,000.

MS. TARLEY: No comment.

MR. BROOKMAN: We'll let Trent follow on, then I'm coming to Glenn.

MR. ROTH: Trent Roth. I would probably estimate right now about three million machines out in the existing market is what our numbers have. Maybe 3 to 3.2 million, not 4.2 million, but we have seen that decline by both manufacturers, a significant decrease in machines being pulled out -- an increase in machines being pulled out of the marketplace.

The machines definitely are very old machines

that were high energy-using machines that are being removed. So it’s significant and doesn’t seem -- it seems to be a trend, based really upon drinking habits and consumer choices right now.

MR. BROOKMAN: I’m certain the Department would really appreciate if there was some way for you to describe the array of machines and what’s being pulled out based on what kind of energy characteristics they had, that that information was available to you in your written comments, boy, that’d be very helpful to them in their analysis.

Glenn, you’re next in the queue.

MR. SELFRIDGE: Yeah. I had actually two comments. One, we did some analysis and we come up with duplication in counting of machines of the bottlers, loaned machines to one of these big vending companies, and NAMA’s counting them twice. We could not come up with more than about 2.3 million.

MR. BROOKMAN: Can you describe that thing about NAMA counting them twice?

MR. SELFRIDGE: NAMA -- the way NAMA collects information on vending sales isn’t just the manufacturers. It’s from all the vending operators. The vending operators are getting a lot of the machines for free, most of them for free. So it’s a double

count.

MR. BROOKMAN: I see.

MR. SELFRIDGE: Secondly, I believe there's a structural change. Many of the prime vending sites or manufacturing locations in this country have been shipping those overseas now very strongly for years. So that there's deep structural changes in the vending market itself, too.

MR. BROOKMAN: So what's being shipped overseas?

MR. SELFRIDGE: Jobs.

MR. BROOKMAN: Jobs.

MR. SELFRIDGE: Manufacturing jobs.

MR. BROOKMAN: Okay. Thank you. Not the machines.

MR. SELFRIDGE: No, manufacturing jobs.

MR. BROOKMAN: Okay. Thank you. Steve, go ahead.

MR. COUSINS: I was just going to echo confirmation of what Glenn just said. What happens is the Coca-Cola bottlers or the Coca-Cola system will purchase machines and then they will turn them over to full-line operators who will manage them. So there could be -- when they -- when NAMA does polling on vending machine population, they ask Coca-Cola and they

ask the full-line operators, there is that likelihood that the machines are being double counted.

MR. BROOKMAN: Thank you. Aris?

MR. MARANTAN: Yes, Aris Marantan. I think I heard earlier someone mentioned that EPA and NAMA have information on shipments data and I'd like to just see if it's possible that that information could be shared.

MR. SOMASUNDARAM: This is Sriram. I believe we will be talking about that in the shipments analysis portion of the presentation.

We did get some data from NAMA, at least trend data, in the last five years, and what you saw in terms of the stock and also the annual shipments in the earlier slide was -- my understanding is that those were 2001 data, I think when the shipments sort of hit a peak around 2000 and 2001, and my understanding again, based on data we have seen and both in the State of the Vending Industry Report as well as the NAMA numbers, is that it's been on the way down since then to about -- I don't recall, but it's -- the total stock is down in the 3.7 million range, but the annual shipments are in the 120 to 100,000 per year range.

MR. BROOKMAN: Did you introduce yourself as being from EPA?

MS. SCHMELTZ: Yes, I did.

MR. BROOKMAN: I thought you did. Please say your name for the record.

MS. SCHMELTZ: Rachel Schmeltz with EPA. We do collect unit shipment data from all of our EnergyStar partners. We have been doing so for vending machines for, I believe, the past three years. We can share the aggregated data with you. We collect it specifically for EnergyStar-qualified units shipped but then also request information as well on the total units shipped. So we can certainly share that with you.

MR. BROOKMAN: How complete is your data?

MS. SCHMELTZ: How complete?

MR. BROOKMAN: How complete, yes.

MS. SCHMELTZ: It covers the major manufacturers that were listed in the slides.

MR. BROOKMAN: Okay. Thank you. I thought I saw somebody over here. Yes, your name, please.

MR. McMAHON: Tom McMahon, NAMA. I just wanted to point out that NAMA does very little gathering of industry data. It’s mainly done by trade journals, Automatic Merchandiser Vending Times. I think people attribute those net data to NAMA. That is done by Vending Times and the other trade journals.

The other thing is, the other point I would

make is we have seen a decline in vending machine sales in general over the last five to six years. A lot of it is connected to the obesity issue. The rate of obesity among the American people is rising. A lot of the critics, a lot of the media, Centers for Disease Control, politicians, school officials, they seem to link vending machines sales, especially in schools, to that issue, and I think there have been some school districts who have pulled vending machines from schools in connection with that issue.

Our industry is doing everything we can to offer a wide variety of foods and beverages and I know Coke and Pepsi and others are certainly offering low-calorie items and bottled water and so forth.

Nevertheless, it’s an industry that was devoted to a certain product mix over decades and it’s taking us awhile to make those changes. I guess it’s a long way of saying I agree with the comments made earlier that the vending industry, at least in terms of unit sales, has been in a state of decline over the past three to four years.

MR. BROOKMAN: Okay. So that was a lot of good comment there. Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock. Yeah. I kind of heard about that there’s a trend for the

manufacturing to be -- is going overseas and possible job impacts, and I was wondering, I guess over the last five years, what -- has that trend accelerated and, you know, the rules -- how much of an impact is that having on, I'll say, the manufacturing side of the equation in terms of were machines 100 percent manufactured 10 years ago in the United States versus, you know, 75 now? Again, I'm just kind of curious because that obviously -- the Department has to check on the manufacturer impact.

MR. BROOKMAN: We're going to cover that later in the analysis.

MR. ROSENSTOCK: Okay. Thank you.

MR. BROOKMAN: Yeah. Okay. So final comments. This was very helpful, this discussion on distribution channels. Any final comments on those before we move on?

(No response.)

MR. BROOKMAN: Okay.

MR. SOMASUNDARAM: Okay. So the way that we calculated the mark-ups is based on the -- I indicated earlier that it was based on the industry balance sheets or the wholesaler balance sheets and also related to the cost of goods sold and the baseline mark-up, like I indicated before, supplied to the

baseline efficiency equipment includes the direct labor costs, such as salaries, payroll, rental and occupancy of the company, whereas the incremental mark-ups, which are applied to the higher efficiency equipment, do not include the costs that are constant; that is, the direct labor costs, whereas we only include what the -- how the costs vary with increased efficiency.

Then to give you some details about what the specific numbers are or how we calculated the specific numbers, the wholesaler mark-up we estimated again from Census financial data.

The manufacturer direct sales to beverage bottlers, we assumed that there was a zero mark-up before application of the sales tax, and the sales tax is applied based on each specific state’s tax data.

The national average estimates for sales tax then is also including the estimates of relative shipments of the beverage vending machines by each state. So we do that on the basis of population rates within each state and that’s because we don’t know the exact number of relative shipments at the state level. We use the Census data for population as a proxy.

These next two slides show the table with the actual values that we used for the mark-ups. The first column is the manufacturer direct sales, the channel 1,

and the second is the wholesaler or distributor mark-up which is all of channel 2 and 3 because we assume that, if you remember, the manufacturer sells to a distributor before the distributor sells it either to a vendor operator or a site owner, and as you have indicated, the site owner is a pretty small market, so it's mostly to channel 2. And overall weighted average, again this is the baseline mark-up, shows the overall mark-up of 1.226 for the entire mark-up.

The next slide shows the incremental mark-up applied to the higher efficiency equipment and that number is 1.137, based on the numbers here.

MR. BROOKMAN: Tom Eckman.

MR. SOMASUNDARAM: Let me pause --

MR. BROOKMAN: Yes.

MR. SOMASUNDARAM: -- for any questions.

MR. ECKMAN: Tom Eckman. Those are based on the rates that you showed in the other table?

MR. SOMASUNDARAM: That's correct.

MR. ECKMAN: So these would be lower?

MR. SOMASUNDARAM: These will be lower if you change them to 80 or 85, yes.

MR. BROOKMAN: Okay. Thank you. Other comments on these expenses and mark-ups?

(No response.)

MR. BROOKMAN: Okay. I see no additional comments on those.

MR. SOMASUNDARAM: Okay. So the next step in our analysis is the energy use characterization, and as Aris indicated earlier, we basically divided the entire market into two classes of equipment. Class A which are predominantly the glass front or also called the shelf-style and also called the fully cooled machines, and because these are glass front, we assume that all of these machines were typically installed indoors and the indoor condition happened to be coincident with one of the test conditions that is listed in Standard 32.1 of 75 degrees F and 45 percent relative humidity.

So to calculate the energy use of those machines, of Class A machines, was not a problem in the sense we could just calculate the daily energy consumption of these machines, add them up for a year, and we had average number over the annual basis.

It was the Class B machines which are the closed front or solid front, zone cooled and stack-style equipment that were sometimes installed outdoors and some of them were installed indoors, and we had no data on what percentages were installed outdoors and what percentages were installed indoors.

So we made a few calls to a few distributors

in our local area and we also talked to Bob McGarrah and rule of thumb was emerging of 75 percent of these machines were typically installed indoors and 25 percent would be installed outdoors and so that was our assumption.

As the second bullet under Class B machines indicates here, for the 25 percent of the Class B machines located outdoors, we modified the Engineering Analysis model, as I indicated earlier, to be able to account for varying ambient conditions, all the way from about a 130 degrees F to about minus 40 degrees F or something, because the weather data, the TMY-2 data that we used for all the 237 cities in the U.S., varied by that much.

We also binned the relative humidity data in five percent increments and finally, the annual energy use for Class B machines was calculated as 0.25 times the energy consumption of the machines installed outdoors, plus 0.75 times the energy consumption of the machines installed indoors.

MR. BROOKMAN: Gary?

MR. FERNSTROM: Gary Fernstrom.

MR. SOMASUNDARAM: Yes?

MR. FERNSTROM: Where these machines are assumed to be used indoors, is the load they place on

the building cooling systems considered in this analysis or not?

MR. SOMASUNDARAM: Yes, we got a comment about that at the Framework Meeting, and we assessed the load on the -- it was typically considered to be a plug load, a constant plug load, and when we calculated the annual energy consumption based on eight kilowatt hours per day over 365 days a year, it turned out to be about three percent of the lighting load for typical commercial buildings and it was small enough, therefore, the Department decided that it not be included in the impact on the building air conditioning load and we state that in the ANOPR document.

MR. FERNSTROM: So you assessed it but then decided not to include it?

MR. SOMASUNDARAM: That’s correct.

MR. BROOKMAN: Lane?

MR. BURTON: Lane Burton, NRDC. Later in the Federal Register document, it says that 30 percent of all beverage machines are assumed to be in manufacturing and warehouses.

Are those considered indoors or outdoors?

MR. SOMASUNDARAM: If they’re in the manufacturing facilities, they are considered indoors.

MR. BURTON: Okay. And does anyone look at

the percentage of manufacturing and warehouse facilities that have air conditioning?

MR. SOMASUNDARAM: Well, okay. The -- I should clarify. The business type installations breakdown that was done later to assess the life-cycle costs was done on business type percentages. That breakdown depends on -- so for example, one quarter of the 30 percent installations could be outdoors because the overall division was at the total shipment level, total market level, and then we break it down, both Class A and Class B machines.

So there could be -- the 30 percent of the market that goes into manufacturing facilities could consist of both Class A and Class B machines and all of the Class B machines, perhaps one-quarter, up to a quarter of those machines, could be installed outdoors.

MR. BURTON: Okay.

MR. SOMASUNDARAM: So that’s the division.

MR. BURTON: Okay.

MR. SOMASUNDARAM: So.

MR. BROOKMAN: So other questions or comments? Tom Eckman?

MR. ECKMAN: Just following up on that, it probably would be useful to look at the CBECS data to see how much unheated warehouse space there is to see

just to see whether that tracks with the 25 percent because if you've got so many going into warehouse facilities and some number, like 25 percent or less, than you're probably okay because so many are going to go outside some other place, but if it's a number that exceeds that, then the number may be too small for outside units.

MR. BROOKMAN: Gary?

MR. FERNSTROM: Gary Fernstrom again. So I'm not sure I understand this issue of the load the equipment places on the building.

If we save some energy with the vending machine or, for that matter, any other product that generates heat that's inside a building, at least during the time the building air conditioning is operating, about a third of that heat energy is consumed by the air conditioning equipment removing that heat from the building.

So it would seem to me if you consider all of the energy saving potential associated with reducing loads inside buildings, you would get about a third more energy reflected in reduction in air conditioning load.

Is that deemed to be insignificant or is there something wrong with my reasoning here?

MR. SOMASUNDARAM: No, there’s nothing wrong with your reasoning, except that the air conditioning or the cooling of the building is only over four to six months of the year. You also have to remember that for the remaining six months of the year, the machine adds heat to the space when it isn’t the heating season.

MR. FERNSTROM: Yeah. Well, I don’t --

MR. SOMASUNDARAM: And so when we -- we did look at two-thirds of the commercial building stock from CBECS data where these machines are typically installed and if they are installed in conditioned space, we looked at what would be the energy consumption on an annual basis of a number of these machines and came up with the fact that it was three percent of the entire lighting load in the building which is, as you know, a predominant energy consumption in a commercial building, and so if the remaining -- I mean, if the lighting is also adding heat to the space, to the cooled space.

So we heard the comment. We assessed the impact and three percent of the lighting load in a building was deemed to be relatively insignificant impact on the air-conditioning load, remembering that for half the year, it in fact adds heat to the building.

MR. FERNSTROM: Well, I don’t know that our experience lines up with yours with regard to the way air conditioning works in buildings, at least out in California. Most commercial buildings are dominated by internal loads and have more air conditioning than they do hours in the year when heating is actually required.

But thank you. I understand what you did and we’ll address this in the comments.

MR. BROOKMAN: Let me go to Trent for a follow-on comment, then I’m coming back to you, Steve. Go ahead

MR. ROTH: This kind of goes back to what we debated a year ago when we really looked at heat loads and all that. We could not find one city in the entire United States that had a temperature, average temperature above 75 degrees. There isn’t a place in Miami that was at 72 degrees when we looked at it from the national -- we couldn’t find -- there are always exceptions, but you go to a place like Minnesota, you want -- it’s not going to -- when we start looking at the average temperature, we’re going to use considerably less energy to run a machine there than we are in Miami, for example.

But I think when we look at a standard for the U.S., I know air conditioning is running in

California, let's say, for four months, five months, out of the year in certain buildings, but on average in the United States, it's not running that often and there's an exception out here today, but it goes back to these average temperatures. They were extremes. Ninety degrees isn't real life. It happens occasionally, happens today, but it doesn't happen 365 days a year. Snow happens sometimes, too.

MR. FERNSTROM: Okay. So I don't disagree with you about the average temperatures. I'm just suggesting that commercial building air conditioning use is dominated by internal heat loads. So it's a little less important what the outdoor temperature is than the fact that these buildings have significant plugged lighting and other load that's generating heat inside the building all the time that needs to be removed.

MR. BROOKMAN: Thank you, Gary. Steve Rosenstock and then to Harvey.

MR. ROSENSTOCK: Again this is one of those issues where it really depends on the climate zone you're in because obviously in the more northern zones, commercial buildings do heat and there's a benefit from the heat that's rejected from the machines, so it reduces the heating loads. Then you've got to get

into, okay, well, what are the energy savings in the winter time versus the energy penalty in the summer time?

Yes, you know, on an annualized basis, it might in many buildings, there's probably more in the cooling side than the heating side, but in the more northern zones, it probably cancels out, I would guess, on an annualized basis just in terms of, you know, heating penalty -- I mean heating addition, heating benefit versus cooling penalty. So again, it's, you know, there but again it could be, you know, in the less than five percent range.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: Harvey Sachs. I want to agree with everybody but draw a different conclusion. That may not surprise anybody.

One of the points --

MR. BROOKMAN: Thanks for the heads up.

MR. SACHS: One of the points that I'd like to make is that I appreciate this relative evaluation that it looks like the heat rejection is three percent of the lighting load. It calibrates it. I fully agree that this is a small number, given the overall uncertainty of the analysis.

What would concern me is that we at least

track this sort of thing to make sure that we're not stacking a number in ways that are -- a number of these uncertainties in ways that might align all on the same side and no longer give us an unbiased estimate.

So I'm comfortable with leaving it out now as long as we keep track of which direction we're going in.

MR. BROOKMAN: Gary?

MR. SACHS: Let me finish one other point, if I might, and that point is the question of the outdoor versus indoor. This is right now, I believe, a bit of a proxy and the point that I want to bear in mind is that for equipment operated at high temperatures for pretty basic reasons, it takes more kilowatt hours per unit of cooling delivered to the interior of that case than it does at a lower ambient temperature, so that there's a disproportionate importance to high temperature operation.

How that gets included in this -- that value gets included here is quite open, but I don't want to forget that when we deal with average costs.

MR. BROOKMAN: Gary?

MR. FERNSTROM: Okay. So just one more quick comment. No offense to Steve Rosenstock, but at least for PG&E, most of the heating is gas and the cooling is

certainly electric.

MR. ROSENSTOCK: So it should be analyzed both ways.

MR. ROSENSTOCK: Steve Rosenstock, EEI. But if you're going to do that analysis, again if there's a cooling penalty where you need more air conditioning, then there's a heating benefit where you might need less gas or electricity. I'm just saying in terms of analytics. That's all I was referring to.

MR. FERNSTROM: I agree.

MR. BROOKMAN: Okay. So that was a useful bit of comment there. That's helpful.

MR. SOMASUNDARAM: I think we covered this slide, I think. Basically, I was trying to explain how we did the outdoor installations, how we developed the weather data and then calculated the annual energy consumption figures.

Oh, the final bullet, I do want to emphasize that. You heard the discussion about the engineering model, coming up with the design options and efficiency levels, and for Class A and Class B machines, DOE had 11 and 13 efficiency levels that were priced, costed, and developed in the curves.

We then down-selected nine efficiency levels, including a Level 0 which was considered a market

baseline, which is the present market baseline, while the analytical baseline that we compared all the life-cycle costs to is, in fact, referred to as Level 1 which is the Tier 1 of EnergyStar, which went into effect in 2004, and so we considered that as the analytic baseline and then seven levels, additional levels to max tech which is Level 8.

This was simply done to ease the complexity of the analysis downstream, including the life-cycle cost and the national impact analyses, and so from now on, you will see references to 8 and 9 efficiency levels and these are the levels that we are referring to. Of course, we also looked at three sizes, or capacities of the machines.

MR. BROOKMAN: Tom Eckman.

MR. ECKMAN: I just want to follow up on a comment that Steve made about the humidity question I raised earlier, whether it’s incorporated or not.

I think you said it was the 12 percent higher consumption that was incorporated, is that what I understood?

MR. COUSINS: Up to 12 percent is possible.

MR. ECKMAN: This is mindful of Harvey’s keeping score.

MR. COUSINS: Well, what we do, and I know

this doesn't apply to the standard because Coke testing is in large measure not based on ASHRAE criteria. We have a tropical condition that we mandate some equipment to comply with which is a 75 percent humidity and between 75 and 25 percent humidity, you may see up to 12 percent additional energy consumption just involved in condensing the moisture out of the air inside the cabinet in a reload situation.

MR. ECKMAN: So this is just for -- it's a peak period time when you're taking the humidity down when you reload the unit?

MR. COUSINS: Right.

MR. ECKMAN: So it's intermittent, it's not a constant?

MR. COUSINS: It's not a steady state, no.

MR. BROOKMAN: When you reload the unit.

MR. SOMASUNDARAM: It's a pull down condition.

MR. BROOKMAN: When you reload an outdoor machine in tropical conditions, you've got to get the moisture out of the air.

MR. BROOKMAN: Okay. Gotcha. Okay.

MR. SOMASUNDARAM: The next three slides are actually listing the details of three questions in the ANOPR document. The first is the definition of the

equipment classes and as I've indicated before, the first two bullets basically list out the assumptions that DOE made and the blue text at the bottom of the slide asks specific questions or comments from you all on the use of the two equipment classes as defined above and also the -- I think we talked about most of these already, and the split of 75 percent and 25 percent indoor versus outdoor installations.

MR. BROOKMAN: So I think we covered that pretty adequately. Any additional comments on those queries on the bottom of Page 12? Please.

MS. SCHMELTZ: This is Rachel Schmeltz from EPA. I had one question and that was, what are your assumptions about the percentage in the market of Class A versus Class B in your analysis?

MR. SOMASUNDARAM: I believe Class A machines are 90 percent and Class B are 10 percent. The other way? I'm sorry. Yes, the other way.

MS. SCHMELTZ: Okay. Thank you.

MR. SOMASUNDARAM: Yes. Class A is 10 and Class B is 90 percent. Sorry.

MR. BROOKMAN: Okay. Yes, Harvey Sachs.

MR. SACHS: Clarification. That seems to apply to the standing stock out there today. Is this also true for the present shipment ratio?

MR. BROOKMAN: Do you wish to comment, Mike? So Mike Scott says that's what they've used for their analysis. Trent?

MR. ROTH: This is Trent. I just have one question, I guess, for understanding. Class A machines are going to be indoor, are considered indoor only, glass front type machines. Class B machines are indoor/outdoor type machines, not necessarily zone cooled but they could be a glass type machine versus for an outdoor use?

MR. SOMASUNDARAM: No, that's not correct. It's fully cooled are Class A and all the rest are Class B.

MR. ROTH: Okay. Thank you.

MR. BROOKMAN: Okay. So no additional comments on that -- those distinctions. Okay. So we're moving on.

MR. SOMASUNDARAM: The second question we had goes to Nina's earlier comment about -- or maybe not Nina's. Somebody else asked about the lighting control. Perhaps Nina.

We assumed in our analysis that, as you saw in the ANOPR document, that the lights, for example, are on 24 hours a day because we had no data to indicate otherwise.

Now that's also what the test procedure calls for and so we assumed that there were no controls that limit the display lighting or the compressor operation during the day of operating the machine and we also assumed that the lighting will not be affected by any occupancy controls or occupancy patterns in the building.

DOE understands that such controllers exist as has been stated before at this meeting and can either be added on or enabled in certain beverage vending machines, but again we had no data on how many of the machines would have them and how often would they be turned on or off and maintained and controlled.

So we would like comments on any such information that might be available out there.

MR. BROOKMAN: Glenn?

MR. SELFRIDGE: For the purposes of this analysis, --

MR. BROOKMAN: Hey, Glenn, get closer to the mike, please.

MR. SELFRIDGE: Okay.

MR. BROOKMAN: Thank you.

MR. SELFRIDGE: For the purpose of this analysis, this methodology is reasonable and consistent, apples to apples, but bear in mind the

future's going to bring completely automated controls of the refrigeration and the lighting, real time. Okay?

MR. BROOKMAN: Yes.

MR. SELFRIDGE: So we shouldn't be specifying in the standard that you measure always with the lighting and whatever on and the temperatures at a certain point.

MR. BROOKMAN: And would you speculate about the time scale there for that integration?

MR. SELFRIDGE: It's happening already.

MR. BROOKMAN: I'm going to follow on with the manufacturing side here. Trent, and then we're going to Nina.

MR. ROTH: This is Trent. Today, we incorporate turning the lights off, what we call sleep mode, today in our glass front machines, similar to what you'd use with -- you'd see in your computer screen. When it's not being used, it goes to sleep and what we do now, we've incorporated this in all of our glass fronts significantly and that's how we achieve our energy reductions because what we're able to do is turn two of the three lights off in the vending machine and essentially we call it putting it to sleep and it's essential for us to be able to do that to achieve Tier

2 status.

When you look at a vending machine, we really have three areas which we can focus on and that's the evaporator, the condenser, evaporator area that you have the fans, and you have lighting, and as we try to do that, we try to look at innovative ways to drive that down.

So we think it really needs to be included in. I know that's part of ASHRAE 32.1 right now. As long as it cannot be disabled, I mean that is a key, it can be adjusted and when we say adjusted, it can't be adjusted higher than what the manufacturer say. It can be adjusted down so that it actually makes it more energy efficient.

The challenge why we want to do this is, and we've worked with the bottlers on this because it's very important, understand that vending machine outlets out there is branding. I mean, the idea of it is that it's all lit up. It's a statement of their brand and both the glass front and with the piece.

So what we've really -- I mean, it's taken a lot of work, work with the manufacturers, to say now how do we reduce this during an occupancy but still feel that the consumer will walk up to that machine and purchase something, even though it's in sleep mode, so

it’s not like the machine’s out of order, and that’s why it’s very important that we incorporate lighting as a big part of this to develop it.

I mean, it needs to be part of the standard. It’s how we achieve Tier 2 today in some models because we’re able to do it and there’s a lot of benefits being derived from it. So we’d like to see it incorporated into the standard. I think the key is, is that, it can still be adjusted but it cannot be disabled and its not being disabled is the key to achieve the energy efficiency.

MR. BROOKMAN: Hang on. Matt, did you have a --

MR. MILLARD: I’ll come back.

MR. BROOKMAN: Okay. Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. Earlier today, I asked specifically about lighting controls and the answer I received from DOE, that they were not being considered for further consideration under this proceeding. So now manufacturers are saying that they are doing some sort of lighting control in their machines.

Also, there was something in the ANOPR about EEI and ACEEE agreeing about advanced ballasts possibly being used in the machines, to be considered as one of

the technology options.

So as part of the NOPR, would DOE consider lighting controls as a technology to consider as part of the standards analysis?

MR. BROOKMAN: So Aris, is this to you? DOE consultant will respond now. Aris.

MR. MARANTAN: Aris Marantan. Let me just try and clarify my statement earlier about the reason why the lighting controls aren't captured right now.

One thing is that the DOE test procedure that's being used in the analysis and for the standards purposes is the ASHRAE 32.1 and currently, our understanding is that the 2004 version of ASHRAE 32.1 doesn't allow you to include lighting controls unless it is built into the system and can't be disabled by the operator. I believe that's the current interpretation by ASHRAE of that standard and so if the controls happen to pass that criteria, then it's okay and can be captured for lighting controls.

I know that right now, ASHRAE is taking on an update to Standard 32.1-2004 and this is one of the key topics being discussed currently and, you know, once ASHRAE passes the update to 32.1, DOE can update their method of test for rating vending machines for standards purposes. So that could be coming up in the

future, but as of currently, the 2004 version is the one that we're using.

MR. BROOKMAN: Thank you. Bob, do you want to chime in?

MR. McGARRAH: Bob McGarrah. Several of us in the room were part of the standards writing of 32.1 and that point was very, very hotly discussed on how we can make a machine very energy efficient that the customer can't disable, and I think Trent talked exactly to that point.

It's adjustable but the lowest or the highest setting, depending on what side you want to look at, can only go so far and the worst case setting is what it's tested at and that's exactly how certain companies are able to meet Tier 2 for EnergyStar by having that setting. Worst setting, they still get the performance that the purchasers, the Coke and Pepsi, need in terms of lighting and that type thing. So that's why it's in that standard.

There's going to be an update, don't know what that's going to say yet, but it will be better.

MR. BROOKMAN: Nina?

MS. TARLEY: Well, actually, I don't have much to add to what Trent said. I agree with him, but I have to say the future is now.

In terms of what Steve was asking before, the energy management devices usually incorporate the light, so that’s usually not a separate system in itself, but it’s part of the overall energy management device.

MR. BROOKMAN: Thank you.

MS. TARLEY: Also, the last thing I want to say is I think it’s our mandate now to look at, you know, the energy -- the lights on is not something that should be the -- we have to make sure that we encourage the reduction of the energy by reducing the time the lights are on. So I think it’s very critical to change that particular one.

MR. BROOKMAN: And you were commenting earlier on operating hours. Lighting would be one aspect of that. Do you want to say more about operating hours at this time or do you want to save that for later?

MS. TARLEY: Well, the hours vary, depending on the locations. There are some locations where, you know, 24-hour establishment where the machine is on all the time and there are some installations actually are in the office buildings and so on where machines only function during the day and then at 5 o’clock, everything shuts down. So it’s difficult to really

tell you the average, but I think it’s very critical to encourage to turn the lights off.

MR. BROOKMAN: I’m wondering if there’s some way to characterize this for the Department. Trent?

MR. ROTH: Well, the question is not to characterize it as setting a timer. If you start to set a timer, what you’re giving the operator the ability to do is make a whole bunch of adjustments in there and it’s not a factory setting.

So coming in and saying it’s going to be -- why would an operator say, well, it needs to shut off at 5 o’clock and it comes back on at 7 o’clock gives too much ambiguity. Again, it can be disabled or changed. It needs to be a factory setting.

The changes in that vary. I mean, schools, if nobody’s using the machine, a lot of times the software in the machine has the capability to do a variety of things. We can tell you when somebody’s vended from the machine last, we can tell you a whole bunch of different things. So it varies on how the manufacturer may set that, but it generally has to do with the machine not being used, it will go to sleep, just like if your computer screen is not used, it will go to sleep. It’s probably the best way to characterize it.

We use that term loosely because we didn't know what else to call it in the industry except sleep mode and it goes into sleep and still will revive back up when somebody needs to use it.

MR. BROOKMAN: I just want to finish this stream out, Harvey. Mike Rivest.

MR. RIVEST: Just to be clear, there are two aspects where lighting might come into play in the analysis. There's in the actual rating of the equipment, the descriptors. So when we derive the cost efficiency curve, the efficiency is as measured by the test procedure. So it's important that we understand how a technology can reduce the descriptors and I'm not sure I understand the state of that. It sounds like the analysis assumes that it's lights on, steady state, and that's what's being measured in the descriptor currently.

MR. BROOKMAN: Mike, get close to that microphone.

MR. RIVEST: So that's the one aspect, and what I'm hearing is that a revision to ASHRAE may actually allow testing under lower lighting conditions than assuming lights are full on.

MR. BROOKMAN: Trent?

MR. ROTH: It does today.

MR. RIVEST: It does today.

MR. ROTH: Right. There was some changes made on the update that wanted the lights to be on 24 hours. We said today, ASHRAE does allow that standard to take place because it is a state -- it's written into there and so does the EPA underneath the current EnergyStar guidelines also allow that to happen.

MR. RIVEST: So that's one element that has to be cleared up.

The second one is actually trying to quantify the energy savings and that, we require an understanding of how many hours the lights are on and, you know, they're off. So those are the two separate issues that are intertwined.

MR. BROOKMAN: So that's why I was asking if there was some way to simply characterize this and you're shaking your head, it's not possible to do that, Trent?

MR. ROTH: I'll let Steve. Steve might have --

MR. BROOKMAN: Thank you. Steve. I wanted to give him a shot first. Steve, go ahead.

MR. COUSINS: Yeah. Steve Cousins. I'm disappointed that we're getting caught up in the hours with the lighting. In Coca-Cola, we're looking at a

certain percentage of our machines not even having lights and with that percentage growing in the future to maybe to a point not too distant where there will no longer be lighting on the machines, we'll be looking at reflective technologies and other things that will present our trademarks and our branding in a way that is recognized by consumers.

So to get caught up in lighting and how long the lights are on, I think, is really -- it's no sense in doing that.

MR. BROOKMAN: So that's a very interesting trend line you just laid out there. Additional comments on those before I go to our next commenter? Yes, Tom, is this on this stream here?

MR. ECKMAN: Yes.

MR. BROOKMAN: Tom Eckman.

MR. ECKMAN: Yeah. I guess the issue that Mike Rivest raised, which is, you know, if we're going to figure out somehow to modify the on-time schedule from 8760 hours a year to some other schedule for those places where the occupancy or the time of day drives the lighting levels down, then it's not clear to me how that gets done, given current levels of information about what that might look like.

You know, there are occupancy schedules for

office buildings and schools that are sort of templates for doing simulation analysis, but it’s not clear to me that those are necessarily applicable to the vending machine industry. There are whole building schedules, not just the lighting -- or there are lighting schedules for particular building type and that would be the only thing that I know of, unless industry has some sort of schedule in mind for this because otherwise it’s an 8760 hour operation and I don’t know how we take advantage of the technology.

I think we should, but I don’t know how to take advantage of it, given the current level of information that we have about how often these lights are dimmed and not on.

MR. BROOKMAN: Well, one question I had was are these machines quite similar and then they get programmed differently or are they -- that’s principally the way it works? Nina, you’re shaking your head.

I was wondering if there’s a distribution of these technologies you could supply to the Department that would be illustrative in that respect. Nina?

MS. TARLEY: I think that Trent already outlined that there is a technology available currently and it’s been available for several years where we can

program the machine to sense the sales that are happening, the temperatures that are happening. It's a very sophisticated energy management device that can certainly, based on the real sales, rather than being, you know, some average national number, could really eliminate the need for lights most of the days and as you heard Steve saying, that maybe eliminate lights period.

So rather than mandating the 24-hour lights on, we should encourage the lights to be off and that should be part of the protocol.

MR. BROOKMAN: Okay. I'm certain the Department would really welcome in your written comments any way you can describe this more fully. Harvey Sachs.

MR. SACHS: Harvey Sachs. I'm normally a gentle soul, but I want to point out that the Department has dug itself into a pretty deep hole and I point particularly to Page 34,100, Column C, in the Federal Register, the paragraph that begins, oh, a little above the center of the page, "In response."

This goes back to the furnaces and boilers rulemaking of a couple of years ago in which the Department explicitly rejected the consensus agreement recommendation among the environmental advocates and

the manufacturers that would have included both an AFUE and prescription of a certain level or type of control strategies to be included.

In rejecting that, in carrying that same language forward to the paragraph I've cited, I believe DOE may have set itself up for this standard-making to become pretty irrelevant since our friends doing EnergyStar are not under these constraints, these self-imposed constraints, and we may find that regardless of the standards set here, the industry is able to move forward with EnergyStar to achieve savings across a broad range of equipment that simply will be -- will serve to make this proceeding almost irrelevant.

So I'm criticizing the effects of the Department's approach to standards and it's carried forward to this case in a situation where we have rapidly evolving technologies that in part are based on controls and software.

Thank you.

MR. BROOKMAN: Thank you. So I'm certain you will include those in your written comments.

MR. SACHS: Yes, I will, and I would like to add a specific example that's not brought up and that's the advanced features referred to by Nina would certainly include the ability to interact with the

utility for load control at peak times and this is a matter which shows up as small amounts of energy but very large economic value to the grid in general.

MR. BROOKMAN: Thank you. So then we covered a lot of ground. Mike, did you have a clarifying question? Mike Rivest.

MR. RIVEST: Mike Rivest, Navigant. Those are sweeping comments and I don’t exactly understand the specifics of them, but --

MR. BROOKMAN: You’re referring to his citing of the Federal Register Notice?

MR. RIVEST: Right.

MR. BROOKMAN: Right. Okay.

MR. RIVEST: But, you know, to be clear, DOE regulates on the basis of the test procedure and the test method incorporates certain features of a product and I believe what I’m hearing here is that there may be some features that generate energy savings that are not captured by the test procedure and, you know, there’s nothing more deceitful than that.

MR. BROOKMAN: Tom Eckman.

MR. SACHS: Precisely.

MR. BROOKMAN: That was Harvey Sachs. Now Tom Eckman.

MR. ECKMAN: And this is a question for the

Department. Under EISA, there's the ability to regulate more than one characteristic of equipment, and I guess the question is whether or not you can regulate both on the basis of a performance standard tested by ASHRAE Standard 32.1 and also a prescriptive requirement that would encourage the manufacturers to place such controls in that device, knowing that it would -- not to define what that device is but to have the ability to control based on use of the machine.

It's an open question. I don't expect we'll want a response right now, but under EISA, you were allowed to regulate more than on one parameter.

MR. BROOKMAN: Thanks for bringing that up. So that was -- that conversation was very useful. Final comments on this spectrum of issues? Yes, please, Trent.

MR. ROTH: Just one last comment. 32.1 isn't finalized yet. I mean, we're all being very speculative here about what it's going to end up and you were at the meeting last Sunday. I think that's important, that if it's not included, it's written so that if these features cannot be included, there needs to be an exception made to the test procedure.

We're trying to decide on something right now that hasn't been decided yet because we don't know what

that test procedure is. I don't think that's going to take place for another 30 to 45 days.

MR. BROOKMAN: Okay. Aris?

MR. MARANTAN: Yeah. I can comment on that a little bit. One thing is the test procedure that DOE's mandated to use right now is currently ASHRAE Standard 32.1-2004 and, you know, that's what we have as a legislative requirement.

But also in the statute, DOE can update the test procedure once ASHRAE updates its test procedure. So yes, we are certainly looking forward to 32.1 being updated. I don't know the current timeline for that, but that would certainly take care of a lot of these concerns.

MR. BROOKMAN: Okay. Thank you. So we're going to move on now, folks. Yes, Matt, please.

MR. MILLARD: Matt Millard. I just had a quick point of clarification about the equipment classes, just so that nobody was confused.

Class A, the only requirement is that it's fully cooled. The indoor installation is an assumption about Class A.

MR. BROOKMAN: Thanks for that clarification. Okay. Now to Sriram.

MR. SOMASUNDARAM: Okay. The next slide,

Number 14 in this set, asks for -- raises Issue Number 3 which has to do with refurbishment cycles.

Now, part of this question pertains to this Energy Use Analysis and the second part of this question relates to the Life-Cycle Cost Analysis where we developed the installation costs. But I was going to put this question up here, ask the question related to the energy use now and then if you want to bring up other comments related to the installation costs and the maintenance costs, related to the refurbishment cycles and the cost of refurbishment, then you're welcome to do that after Mike Scott presents that section.

But the basic issue here is in our assumption of the Life-Cycle Cost Analysis, we've assumed an average lifetime of this equipment to be 14 years and each unit to undergo, typically undergo two refurbishment cycles during the life of the equipment, and we also assumed those to occur about three or four years into the life or into the operation of the equipment.

So given those assumptions, as elements of the machine get refurbished, the energy consumption of the machine may or may not change, depending on what is done to the machine, and so basically what we are

asking here at this point is are those assumptions related to the frequency, typical frequency of refurbishment cycles correct, and if that assumption is correct, then we are asking further whether refurbishing a machine affects its energy use and how it might affect its energy use.

MR. COUSINS: Steve Cousins here. There are two things that happen within our system. Remanufacture or refurbishment, as you described it, is one. Generally speaking, the lifetime of a vending machine in our system, it was at one point 13 years, it’s actually gone down.

Generally speaking, we scrap machines. It’s been reduced to about 10 years in our system, the lifetime of a typical machine. On that machine, we’re going through one refurbishment cycle. I’m only speaking about present conditions. Things may change in the future.

When it undergoes remanufacture, we have a financial model that we follow, but we only replace or upgrade components or subsystems that need to be changed. If the subsystem or component is in good condition and it still has a lot of life in it, we won’t replace it.

So the assumption that the energy profile may

or may not change is a correct one. There's no guarantee that the energy profile will change.

MR. BROOKMAN: Other comments on these series of questions related to refurbishment? No additional comments? Bob?

MR. McGARRAH: Bob McGarrah. The EPA, in their EnergyStar Program, has worked out a program for the machine owners to upgrade to various levels of EnergyStar and EnergyStar 1, EnergyStar 2, by doing certain things within the machine to the extreme of replacing the refrigeration system to adding equipment that will improve the efficiency of the refrigeration system, change the lighting and things like that.

So the EnergyStar does have a formula or a method or a process to let machines be upgraded energy consumption-wise. How much that's done, I really can't say.

MR. BROOKMAN: Okay. I'd like to call your attention, though, to this slide. There are three specific bullets there and if anybody has any other comments to address any or all of those three. Gary?

MR. FERNSTROM: Gary Fernstrom. I'm interested in last two comments which seem to be opposing one another. EnergyStar apparently has some recognition of efficiency improvement in refurbishment

and Coke is saying that only those components requiring maintenance with respect to durability are usually addressed in remanufacture.

So I'm wanting to understand better what the energy efficiency improvement opportunity is in remanufacture or refurbishment.

MR. BROOKMAN: Steve Cousins.

MR. COUSINS: Actually, the comments that Bob and I have made are not conflicting. They're two different scenarios or situations. We have a process in which we do remanufacture machines. So the Legacy machines may have an extended life in the marketplace.

We do also do energy upgrades but the two are mutually exclusive. Energy upgrades are done based on account needs and account demands. It's not a part of the routine remanufacturing process that we have. So energy upgrades take place. They're just not done across the board on every single machine that goes through a remanufacturing cycle.

MR. BROOKMAN: Gary?

MR. FERNSTROM: Can you give us some sort of sense of the extent to which these two things are done? I'm, you know, wanting to get at what the volume is, if you can answer that question, so we can assess what the opportunity might be to address remanufacture for

efficiency improvement based on the needs of the clients, I guess.

MR. COUSINS: I can't do that at this time. I just don't know what that volume is, so I couldn't tell you. If you say, well, how many machines have undergone an energy upgrade over the past year or what's planned or how many, I don't have that information available right now.

MR. BROOKMAN: Would you say the proportion is stable?

MR. COUSINS: No, it's a growing percentage. It's something that will --

MR. BROOKMAN: The scrapping of them?

MR. COUSINS: Well, no. I was actually referring to energy improvements. The energy improvements, the energy upgrades, the percentage of machines in the system that will undergo that, the number that will undergo that will be increasing in the future.

MR. BROOKMAN: I see.

MR. FERNSTROM: So I'm not looking toward standards to address this opportunity, but at the last meeting we had on this subject, PG&E anyway was looking at some sort of, you know, rebate or incentive program to address that opportunity and I'm still interested in

understanding what the opportunity is there.

MR. BROOKMAN: Okay. Thank you. Trent.

MR. ROTH: Just a comment on that. I don't have any numbers to tell you what percentage is being done today, but EnergyStar addressed the refurbishment piece. When it moved to Tier 2 in July of last year, it needed machines in order to receive the EnergyStar label and to achieve Tier 2 and that included refurbished machines.

We currently have kits listed on the EPA website and are very close to getting new kits that will take both non-EnergyStar, that means pre-Tier 1, units as well as Tier 1 EnergyStar units to achieve Tier 2 status.

We're currently working on that right now and we already have some kits that are already posted on the website. We are working to address the models that were pre-EnergyStar in the marketplace and we're very close.

MR. FERNSTROM: So who actually uses those kits and does the refurbishment?

MR. ROTH: We would open them up as a supplier to both bottler refurbishment agencies. We also have our own refurbishment center in which bottlers send equipment to. So it would be open to

that. It's a kit that's made available to everybody and it's posted on the EPA website. It's just takes us longer to look at that older technology and say, okay, how do we achieve that status, and again we're achieving that status by changing the evaporator fans. We're doing that by regulating the software and the controls to where the condenser, the fans run in operation.

We're also using lighting and going back and saying how do we use this sleep mode to achieve what were non-EnergyStar pieces that we didn't think we could get there and we're really testing the ways of how do we take that established base that's out there and cost effectively be able to upgrade it.

The key is cost effectively. If you're taking a piece that's out there that's seven or eight years old, it's depreciating an asset, how much money do you really want to put into this machine knowing it's only going to last you three to five more years? That becomes a cost equation, but those kits are becoming available. In fact, we'll have more available very shortly.

So we are addressing that installed base and we are very open to looking at how rebates will be able to help cover some of the costs of that because I think

we can, unlike the appliances back when they replaced refrigerators with EnergyStar and people took and put them in their garage, you know, these are getting scrapped or they're getting upgraded to meet the new energy pieces and that's something our industry can do.

MR. BROOKMAN: Okay. Thanks very much. Useful. Bob. I'm going to suggest we take a break very shortly, so hang in there, folks. Go ahead.

MR. McGARRAH: Bob McGarrah. Worst place to be, between you folks and a break.

Just a comment on that. The EnergyStar Refurb Program, I don't want to sound like a commercial but USA Technologies had the first units available to upgrade units from Tier 1 to Tier 2 and from non-EnergyStar to Tier 1. That's on the EPA website.

The industry again, as Trent had noted, we're making tremendous effort to address both the new and the existing base, but in the absence of any real incentive, whether it's a rebate program or something else, it is very difficult to get the dollars to invest that, in our case $82, to just address the energy issue. They'll spend the money on something else that makes it fancier, new sign faces, something like that, and if rebate programs are available for the refurb, that would be a huge help in addressing that install

base and that's where the big opportunity is, not in 300,000 machines that we're buying every year.

MR. BROOKMAN: Okay. Thanks. Okay. I'm going to suggest we take a break. It's 5 minutes after 11 by that clock up there. I was going to suggest we should try and do it in 10 minutes. It will probably take 15, but we'll try and resume at 20 minutes after 11. At that point, we're going to keep going for awhile. Please wear your badges inside the building. This room, there will be people in here. It will be secure. You can leave your stuff here.

Steve Rosenstock before we go.

MR. ROSENSTOCK: Oh, information about the cafeteria.

MR. BROOKMAN: I will tell you when we return.

(Recess.)

MR. BROOKMAN: As we get towards the lunch break and we'll see what the natural break point is as we're moving along here, we do have some trajectory and then let's proceed with the slides. Mike is up and we are on Life-Cycle Cost Analysis.

MR. SCOTT: Slide 15. I'm Mike Scott from Pacific Northwest National Lab. I will be taking you through the Life-Cycle Cost Analysis which depends on

the analyses that have been described so far.

We do the economic evaluation in Life-Cycle Cost Analysis as an analysis from the customer perspective. The Life-Cycle Cost, as you may know, equals the customer price plus the sum of annual operating cost discounted to particular base year and that year is assumed to be 2012 which is the first year of the effect of the new rule.

The results are expressed as a life-cycle cost difference between the baseline and the standard level and Level 1 that’s described in that baseline is actually EnergyStar Tier 1 and so the implicit assumption behind that is that by 2012, everyone will basically be at Tier 1.

The simple payback period in years is also calculated and reported in the analysis.

We began with up to 13 efficiency levels for the equipment in the Engineering Analysis, combining various technologies, and all of this is described in the TSD. Ultimately, nine efficiency levels were selected for the LCC Analysis and we can go into greater detail on that a little later in the presentation. I didn’t plan on covering it right here in this portion, though.

Level 0 represents the current level of BVMs.

As I mentioned, Level 1 represented the EnergyStar Tier 1 level and is the baseline efficiency level from which all the remaining proposed standard Levels 2 through 8 are compared.

Level 2 through 8 are the proposed standard levels analyzed for LCC and Payback Analysis and again compared to Level 1.

This Slide 17 or Page 17 is the life-cycle calculation flow chart and describes how the analysis is done in outline form. Going up on the left-hand side from Engineering Analysis, we take the baseline manufacturer’s price and the standard level of manufacturer’s price for each of the overall nine levels and we take those from the Engineering Analysis.

Those actually wind up being the manufacturer’s sales price that we use which includes the manufacturer’s mark-up but not the wholesale mark-up. The wholesale mark-up or the retail mark-up is the next block and that comes from the mark-up analysis that was described already this morning. It includes any distributor mark-up, any manufacturer direct mark-up, if there is any at retail on direct sales, and sales tax.

Those two things together equal the equipment price or the consumer price. So that is added and

installation cost that I'll describe in a moment, and those two things together are the initial price to the consumer of whatever type and that is the total installed cost.

The lower part of the table talks about the annual operating costs. From the Energy Use Characterization Analysis which is covered in the TSD, we have energy use as a function of efficiency. So we have energy consumption associated with each of the nine levels. We have electricity prices that vary both by location, i.e. state, and by business type. They also vary over time.

There is an annual energy expense at the beginning of the forecast period, the 2012 period, that is essentially the electricity price in -- well, for the ANOPR, it's 2006, then escalated to 2012. For the ANOPR and the final rule, it will be the appropriate price for those years.

To the annual energy expense, we add a repair cost, and maintenance cost, and the repair cost varies by the efficiency level. For the moment, maintenance cost does not. Together, that gives us an annual operating expense.

We apply that over the lifetime of the equipment using a discount rate appropriate to the type

of customer and electricity price trend from the Energy Information Administration which gives us a lifetime operating expense. Total installed cost plus lifetime operating expense give us life-cycle cost. Annual operating expense first year divided into the total installed cost is the payback period. So we're doing a simple payback period.

So the first issue that we want to talk about here this morning is that the selection of EnergyStar Tier 1 as the baseline efficiency level for the LCC and Payback Period Analysis. DOE invites comments on the use of the single level, Level 1, rather than, say, a distribution of efficiencies, and we also, if people feel like Level 1 is not appropriate or a single level, in particular, is not appropriate, we would also seek data that could be used to populate a distribution of efficiency levels for the baseline.

MR. BROOKMAN: So there you have the questions that DOE's particularly interested in that Mike just said. Glenn.

MR. SELFRIDGE: I have a comment.

MR. BROOKMAN: Glenn, get close to the microphone, Glenn. Thank you. Sorry about that. These mikes are real antiquated.

MR. SELFRIDGE: That's okay. I was going to

bring this up later, but I'll bring it up now because it seems appropriate.

I ran your Table 3 data against the formula for industry group machines that were tested at 75/45 and were 100 percent EnergyStar-rated, had been at Tier 1, and I find, at least on the Type B machines, that your line derived from Table 3 for EnergyStar Tier 1 characterizes the actual machines out there on average, but because it characterizes the machines on average, the line rejects about 50 percent of them.

So your line is not at EnergyStar Tier 2. It characterizes machines that have been included in EnergyStar for Tier 1. But in fact, if that were used as the cap, you would be considerably more efficient with your Level 1 than EnergyStar Tier 1. I could repeat that, possibly.

Basically, if you match your line against -- I've got like 20 or 22 different models for three manufacturers. It is a best fit center line of the data. Okay? The machines obviously all equal to or better than EnergyStar Tier 1. So what you've done is you've moved the line down where you would reject many machines that were in EnergyStar Tier 1.

MR. BROOKMAN: Okay.

MR. SCOTT: I think Navigant could help us

with that.

MR. BROOKMAN: Matt, please.

MR. MILLARD: Matt Millard. I was wondering which table are you referring to?

MR. SELFRIDGE: I believe it was Table -- let me get my briefcase.

MR. BROOKMAN: Matt, stay up there.

MR. SELFRIDGE: It’s Table 3, 3.2. Table 3.2.

MR. BROOKMAN: And what page is that? TSD? What is it in?

MR. SELFRIDGE: ANOPR. It’s in the ANOPR.

MR. SOMASUNDARAM: It’s in the revised ANOPR. We will get to it in the afternoon.

MR. BROOKMAN: Okay.

MR. SELFRIDGE: It’s actually the first slide in your back-up sheet.

MR. SOMASUNDARAM: Can we wait till the afternoon?

MR. SELFRIDGE: Yeah. It can wait till the afternoon.

MR. BROOKMAN: Okay. So thanks for raising that and we’ll get to that in more detail. Trent?

MR. ROTH: We’ll get to it in more detail. This is Trent. More detail later. I just want to

concur with him that it's showing using this formula that the baseline is more -- looks like Tier 2 than it does Tier 1. Most of our Tier 1 machines would not fall into that.

MR. BROOKMAN: The implication being the baseline should be lower?

MR. ROTH: I didn't say that.

MR. BROOKMAN: That's why I'm trying to press you.

MR. ROTH: I mean, by 2012, I mean, we'll probably be beyond, I mean, where we are today. I hope so anyway.

But what I am saying is that the baseline is more equivalent to what we are producing today that meets Tier 2 standards. Our Tier 1 machines that we made a year and a half ago would be more or less thrown out here.

I just wanted to state that it's more equivalent to Tier 2 as a baseline today.

MR. BROOKMAN: Right. Okay.

MR. ROTH: I'm not saying you need to change it.

MR. BROOKMAN: And be careful not to throw out too many conclusions from it.

MR. ROTH: I don't think there's a need to

change it. It's a 2012 standard. We're only introducing Tier 2 today.

MR. BROOKMAN: Okay.

MR. ROTH: I'm just saying that referring it to Tier 1 and saying you need to go higher, there is some risk factors because we haven't figured those technologies out today. It's more equivalent to Tier 2, at least from our --

MR. BROOKMAN: That's a helpful comment. Additional comments in this vein? I see one or two. Nina, you're shaking your head yes.

MS. TARLEY: Nina Tarley. No, I think it's very important to recognize what it is. I agree totally. We can discuss should it be lower or higher, but it's important to recognize it's Tier 2.

MR. BROOKMAN: Okay. Thank you. Bob?

MR. McGARRAH: Bob McGarrah. I think what we're hearing is the industry already is meeting the standard that you're setting by being at EnergyStar Tier 2. The industry has worked very hard behind the scenes, if you will, to get energy efficiency without a mandate with the EnergyStar Program and that type thing.

So they're already at Tier 2. They're only selling probably 80-90 percent of their machines are

already Tier 2 and that's why Trent is saying Tier 2 is fine but let's identify it as a Tier 2 so that we don't go way beyond that and get into areas that we just can't perform.

MR. BROOKMAN: Okay.

MR. McGARRAH: Thank you.

MR. BROOKMAN: So other comments on this, on the baseline level here on 18 before we move on?

(No response.)

MR. BROOKMAN: Okay.

MR. SCOTT: Okay. Moving on. Electricity prices, as I mentioned before, are an input to this analysis. We based it on state by state average electricity prices paid by seven business types that use BVM equipment. We had six of them were also basically building types and the seventh was bottler/distributors.

The electricity prices by business type were developed using a ratio of the average price in 2003 CBECS, Commercial Building Energy Consumption Survey, by business type to their average compared to the commercial average price for four of the business types and what appeared to be more appropriate was an industrial average price for manufacturing and military which have similar kinds of energy consumption, very

large commercial-type establishments.

Bottler/distributors are assumed to experience the market share-weighted mix of prices experienced by the other six business types; that is, if there's one percent of them sold in a particular business type, then bottler/distributors are also assumed to have one percent of their sales to that type of building.

These ratios are then applied on a state by state average electricity prices, either commercial or industrial, for year 2012 and then the outyears out to the end of the equipment life by EIA price projections. The price projections used for this particular analysis, I believe, were the AEO 2007 reference forecast. 2008 is out now and, of course, would be used for the NOPR analysis and then, as appropriate, 2008 or 2009 for the final rule.

We also did sensitivity analysis that's included in the Technical Support Document concerning high- and low-growth cases that were run in sensitivities.

MR. BROOKMAN: Yes, Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. Question about the last slide.

Again, so you have -- in the Technical

Support Document, there's information about the assumed percentage of machines in manufacturing, --

MR. SCOTT: Right.

MR. ROSENSTOCK: -- military versus the other commercial spaces.

MR. SCOTT: Right.

MR. ROSENSTOCK: And did you use some of the MECS data for some of this analysis?

MR. SCOTT: No, we were using CBECS for this.

MR. ROSENSTOCK: Manufacturing Energy Consumption. Okay.

MR. BROOKMAN: Those categories you list there, they're all there inside CBECS.

MR. ROSENSTOCK: Well, manufacturing is -- Steve Rosenstock, EEI. Manufacturing is MECS, Manufacturing Energy Consumption Survey.

MR. SCOTT: Correct, correct. The building types that we looked at, a certain portion of those are -- a portion of those buildings in CBECS that are described as manufacturing is the percentage that we used that went to manufacturing as opposed to something else.

MR. ROSENSTOCK: I see. Okay.

MR. BROOKMAN: Harvey Sachs.

MR. SCOTT: We used the industrial prices,

however, for that.

MR. ROSENSTOCK: Gotcha.

MR. BROOKMAN: Keep going, Steve.

MR. ROSENSTOCK: Again, this is a big life-cycle. So this is primarily with outdoor machines, I would say, especially in southern regions. There is a seasonal variation in electricity prices. Summer's higher than winter. The outdoor machines, I don't have data. There might be -- I think I saw something last time from PG&E or California.

It is likely that for the outdoor machines, especially in the more southern areas, that the summer energy consumption might be higher than the winter energy consumption, compared to indoor machines where it's probably flat, you know, every month is pretty flat.

So in terms of Life-Cycle Analysis, in terms of some of the economics of the -- for the outdoor machines, if there's a way -- if what I said is true, that the summer usage is higher than the winter usage, then if there's a way to adjust the economic analysis to adjust for the fact that if they're using more in the summertime, then, you know, the cost per kilowatt hour on an annualized basis will be higher just because of that seasonal variation.

MR. SCOTT: Both the commercial energy prices are what they are in those states, so we do have that variation in place. Also, the analysis takes into account the difference in weather on an annual basis between -- 8760 basis, basically, and in each of those states, based on the TMY2 analysis.

So you do have considerable variation in the cost of a given type of machine in different locations.

MR. ROSENSTOCK: Again, Steve Rosenstock. Thank you. This might be -- again, I don’t want to -- well, there could be an extra step, like you have state annual average for -- let’s say it’s eight cents for commercial. In the summer months, it could be 10 cents versus winter time it’s six cents. Again, it might be interesting to see how the numbers kind of play out for those outdoor machines.

Again, I don’t know, but that’s easy to replicate, but again just as an analytical thought.

MR. SCOTT: Okay. I understand the comment. Thank you.

MR. BROOKMAN: Lane, and then to Harvey.

MR. BURTON: Lane Burton, NRDC. The electricity price forecast assumed no regulatory changes, but there’s almost certain likelihood that there will be a regulatory change in the form of

climate legislation. So we're not advocating that the Department use a forecast that doesn't exist, that includes these changes, but we are advocating that they monetize the value of carbon dioxide and take that into account in the Life-Cycle Cost Analysis and the document to take that price from would be the EIA's Analysis of the Lieberman-Warner.

MR. BROOKMAN: Thank you. Okay. Thank you. Harvey Sachs.

MR. SACHS: Harvey Sachs. Along the same lines, I believe the Department owes its stakeholders some review of the applicability of the EIA AEO electricity price projections, particularly a calibration against other forecasts.

We all know that all forecasts are wrong all the time. It's just a matter of how much. But there certainly is a sense that for whatever reasons, the EIA Annual Energy Outlook has not tracked the volatility and increasing prices of the actual as-revealed market as accurately as some of the private sector forecasts and it is time for the Department to perhaps pay attention to additional sources of information.

MR. BROOKMAN: Thank you.

MR. SCOTT: Harvey, this is Mike Scott. Do you have any, in particular, in mind?

MR. SACHS: We can provide a list, Mike.

MR. SCOTT: Thank you.

MR. BROOKMAN: Okay. Additional comments on electricity prices before we move on? Gary? No. Okay.

MR. SCOTT: Moving on. Okay. Installation costs are a component of the first costs of the equipment, and for the ANOPR, DOE assumed a $72 installation cost per machine. Those costs were based on an article by Foster Miller in 2002, adjusted to 2007 dollars.

Installation costs were assumed not to vary with the equipment price or efficiency level but do vary by location, primarily for differences in labor prices.

The discount rates that were used were derived from estimates of the cost of capital for companies that would purchase beverage vending machines by business type. I alluded earlier to the various classes of equipment. The cost of capital is calculated as a weighted average cost of capital that combines the ratios by company of equity and debt financing.

All of this comes from an analysis of something like 8,000 U.S. companies that are

categorized according to the business type and we picked representative companies from those types.

The weighted average value adjusted for inflation, and these numbers are, I believe, January 2007 numbers, that's going to have changed a bit, is 4.49 percent for bottler/distributor, 6.19 percent for manufacturers, 5.42 for office/healthcare, 5.77 for retail, 1.81 for schools, 2.83 for military installations, and 5.15 for other which are primarily warehouses.

Equipment lifetime. In the ANOPR analysis, and we've had some comment on this already this morning, we used an average age of 14 years, dependent on a literature survey and some industry input. We assumed that the equipment would be refurbished every three to five years, again we've had some comment on that this morning, and would undergo two refurbishment life cycles in a typical lifetime.

I should say about the equipment lifetime that that actually winds up being a distribution of potential lifetimes, reaching from three years out to 20 years, and it follows what's called a Weibull distribution which is commonly used for equipment failure analysis.

The repair costs were also based on the

Foster Miller article and averaged $115 per year per unit of equipment. Repair costs were assumed to increase proportionately with equipment price. Maintenance costs basically had two components: a routine maintenance cost of $33 a year that includes things like simply cleaning regularly and that sort of thing, and then a preventive maintenance -- I'm sorry and two refurbishment cycles once every four years at $930 each. Again that was input from that Foster Miller article, I believe.

MR. BROOKMAN: Let's pause there. Bob?

MR. McGARRAH: Bob McGarrah. I just wanted to comment on the cost of capital analysis.

MR. SCOTT: Sure.

MR. McGARRAH: If we go back to Page 5 of this presentation, we got some very good information this morning about what percentage of equipment was owned. So I think it's pretty clear that close to 90 percent of the equipment is owned by two companies. So we could probably just use their discount rate and get a lot more credibility into the analysis.

MR. BROOKMAN: They supply that discount rate in their reporting to NAMA or to EPA or somebody?

MR. McGARRAH: I don't know.

MR. BROOKMAN: Okay. Gary?

MR. FERNSTROM: Well, the discount rate is used in figuring the economics and it seems to me that the energy savings here results in a reduction in the customer's bill who's not part of that equation directly. As was pointed out earlier, they may be indirectly.

So I'm not sure whose discount rate we ought to be using here.

MR. BROOKMAN: And particularly the Department would really appreciate your comments on the discount rate and what it should be and to whom it might benefit or why. So as you look at these two slides, 20 plus 21, there's all kinds of -- we've already had some good discussion on equipment lifetime. We've already had some good discussion on repair costs. We've already had also some discussion on maintenance costs.

So further comment on those would be helpful. I'll start with Bob.

MR. McGARRAH: I just want to comment on the discount rates again. It says, "Cost of capital of companies that purchase beverage vending machines." That's basically two companies. So I think we could very quickly get a really solid number around that just by going to what a large beverage company pays for

capital.

MR. BROOKMAN: Okay, okay.

MR. McGARRAH: It's going to change your analysis.

MR. BROOKMAN: Okay.

MR. SCOTT: So just to be clear, you're suggesting that that small portion of the market that is actually site-owned machines, schools, military, others, be omitted from the analysis?

MR. McGARRAH: We heard this morning that it's five percent, so that's your call.

MR. BROOKMAN: Steve?

MR. COUSINS: As far as I know, the military doesn't own any machines and neither do any of the schools.

MR. SCOTT: Okay.

MR. LLENZA: So it becomes even smaller.

MR. BROOKMAN: So that's Charlie's comment on it. So Nina, thank you, please.

MS. TARLEY: Actually, it's not totally correct. It's not just two companies. Vending machines are owned by bottlers. PepsiCo has several bottlers. As far as I know, Coca-Cola has several bottlers and they're the ones who owns equipment. So it's more than just two. We're talking at least half a

dozen, maybe more, large entities that own 90 percent of vending equipment.

MR. BROOKMAN: So, Mike, the third bullet where you reference the weighted average discount rate, the values, this is some representation of what these different groupings, cost of capital and all that, interest rates they pay and --

MR. SCOTT: Yes, that’s correct.

MR. BROOKMAN: Okay. So comments on those figures, in addition to what we’ve heard already? Bob?

MR. McGARRAH: Very much to Nina’s point. Their list is right here. Bottlers and distributors, and that’s probably the number that we should be using.

MR. BROOKMAN: Okay. You like the break-out categories? It’s sensible to you?

MR. McGARRAH: Based on Slide Number 4, that’s 90 percent.

MR. BROOKMAN: Okay.

MR. McGARRAH: So it would be reasonable for analysis purposes.

MR. BROOKMAN: Okay. How about equipment lifetime repair costs and maintenance costs? Steve?

MR. COUSINS: Without giving specific numbers, generally speaking, maintenance costs are really on the order of $90 a year. Our remanufacturing

costs are significantly less than what's assumed or stated here. Generally speaking, a remanufacturing cycle is somewhere around $5 to $600.

MR. SCOTT: In case -- Steve, in case it comes up, is there a difference in -- between a remanufacturing cost and a -- I think you called it an energy upgrade or one of these kit changes?

MR. COUSINS: Yeah. There is a difference there. I could not comment on the cost of an energy upgrade.

MR. SCOTT: Okay.

MR. COUSINS: That's just not information I have at the tip of my tongue right now.

MR. SCOTT: Is it something you could put in the written comments?

MR. COUSINS: Yeah. I could provide some general numbers around that.

MR. SCOTT: Okay. Can others also do that?

MS. TARLEY: Nina Tarley. Yes.

MR. SCOTT: Okay. Thank you.

MR. BROOKMAN: So we heard earlier comments on equipment lifetime. Other comments on lifetime repair costs and maintenance costs? Bob?

MR. McGARRAH: Bob McGarrah. I believe the EPA EnergyStar Program has some costs on what an energy

upgrade would cost, so you could probably draw that right from the EnergyStar Program and again get a real accurate, real world number as opposed to, you know, trying to calculate it backwards from some other source.

MR. BROOKMAN: Okay.

MR. SCOTT: Would EPA care to comment on that? Do you have such information?

MR. BROOKMAN: Rachel?

MS. SCHMELTZ: This is Rachel Schmeltz. I don’t think we have that information on cost to share.

MR. BROOKMAN: Bob?

MR. McGARRAH: Rachel, do we have the -- Bob McGarrah. Rachel, do we have the numbers on the kit costs? I thought that was part of the information that we had to provide. You just provide the kit numbers and then they have to order from the manufacturer.

MS. SCHMELTZ: Right. We just provide what the kit is.

MR. McGARRAH: So the manufacturer can provide that.

MS. SCHMELTZ: Yes.

MR. BROOKMAN: Thank you. I see Trent. Please.

MR. ROTH: This is Trent. We could provide

an estimated kit cost, but the kit costs are going to vary depending on the age of the equipment and what we're trying to achieve. The piece that we don't have is -- I couldn't estimate. We do estimate length of time. We do provide to how long we think an installation may take and it will also vary by piece of equipment, but the true cost of it, I'd have to go back to Nina and Steve later on for them to say, okay, what are the installation costs, field installation costs? You're going to have field installation costs and refurbishment installation costs. They are going to vary, whether you're going out to that machine or whether it's coming through a regular process.

So I don't know if we have that today. We're working on all these kits. We can give some estimates probably and report back.

MR. BROOKMAN: That would be very helpful.

MR. ROTH: It would be ballpark. It would definitely be. Just a comment on that piece. I think it's already been made. It's about one refurbishment cycle today and I think if it's about $500, chances are it's going to get scrapped. So it's typically lower than that.

MR. BROOKMAN: That's useful. Thank you. Harvey Sachs.

MR. SACHS: Harvey Sachs. Just a request for a bit of clarification on Slide 21. I'm not quite reading under Bullet 3 exactly how the preventive maintenance costs derives at a $165 from the bullet below and it may be that it's just a matter that you want to put out a revised version with the updated costs we've gotten from the manufacturers.

MR. SCOTT: I think the answer to your question is, yeah, we do something revised obviously. But to the point of the 165, it's 33 every year basically, plus an annualized equivalent of 930 twice, once at four years and once at eight years.

MR. SACHS: Okay. Thank you very much.

MR. BROOKMAN: Okay. Let's move on.

MR. SCOTT: Okay. Couple of examples of the kind of analysis that we've done with all of this data and the kind of output we provide.

The slide you see on the screen right now, Slide 22, shows a cumulative life-cycle savings and this would be for a particular piece of equipment, say a large indoor or outdoor Type B machine, under various circumstances in the U.S. We do a thousand runs of the model in uncertainty analysis using Crystal Ball® which is an add-on to the Excel programs and what we get here in this particular case for the set of

assumptions was that we have a mean value but we also show the scatter and it's considerable, largely because of differences in energy prices but also because of differences in energy costs or energy use, differences in installation costs and so on. So you do get the sense of how variable that is across the country.

The next slide, Slide 23, shows an average for several levels and we have the -- beginning with Level 1, the EnergyStar, as we've described it, as Tier 1. Level 2, Level 3, 4, 5, 6, and 7, and on out to 8 which is our max tech in every case, and as you can see, the life-cycle costs for this particular piece of equipment, this particular equipment class, tend to fall for awhile, levels out, and then max tech for some reason having to do with the first cost, I expect, increases considerably, but this is a weighted average across the country. So what it does is it takes all that variability into account and then this is the averages for each of the levels.

Payback Analysis. We have a similar type of analysis with a cumulative probability distribution that again takes into account the variability across the country. For the particular piece or the particular equipment class shown here, the payback period average across the country is 1.7 years, goes

from as little as, it looks like, about 0.6 to as much as about 3.5 years.

MR. BROOKMAN: We have a couple of questions here.

MR. SCOTT: Yeah.

MR. BROOKMAN: Actually Harvey's first, Steve.

MR. SACHS: Harvey Sachs. Moving back to Figure 23, U.S. National Average LCC Analysis Results.

MR. SCOTT: Yes.

MR. SACHS: We see a very broad trough from, say, Level 3 with an imputed life-cycle cost of $60.36, up to through Level 7 at $60.31. I don't think those two numbers are analytically different from each other.

MR. SCOTT: The changes are really typically small between them. Yeah.

MR. SACHS: And one of the things we haven't been hearing from the Department in the context of the requirements of the law for the maximum level that's economically -- technologically feasible and economically justified is, I'm not even sure that the max tech at $72.28 is a meaningfully different number from the $60.31 at Level 7 and as we have in earlier proceedings, we would certainly want the benefit of the Department's wisdom on whether, for example, the least

cost at $59.75 for Level 4 is really a different number from the Level 7 at $60.31 or the $60.36 for Level 3. I mean, it doesn't seem to reflect any kind of reality given the uncertainties in the underlying information that went into the analysis.

MR. BROOKMAN: Okay. Thank you. Steve?

MR. COUSINS: I'm sorry, Harvey. I guess I didn't completely understand the discussion or the argument that you were presenting there.

My thought was this. I know that there's a in our full-service vending operation, the margins are pretty thin and the difference between a profitable machine and an unprofitable machine is very small. Our maintenance costs are somewhere around $90 a year now. If it were a $110, we would be pulling more machines out of the marketplace.

So what I didn't understand when you said there's not a substantially -- any substantial difference between the 6,000 and the 7,000 number, I didn't follow exactly the basis for what you were saying.

MR. SACHS: Thank you, Steve. This is Harvey Sachs again, and let's just leave out the Level 8 max tech and look at the various numbers between Level 3 EnergyStar Tier 2 and Level 7 and I'm suggesting that

there's a $5 estimate of the life-cycle cost difference which includes a fair amount of uncertainty about exactly how long these things are going to last and what the energy costs really will be in the outyears.

At a given point in time, as your maintenance costs are revealed to you, you can make decisions and I'm just not at all sure that these numbers have any kind of meaningful difference among them when the difference is $5 over 15 years. $5 is less than a tenth of a percent of the life-cycle cost.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Just to go back to Slide 24, I just wanted to say as a long-time stakeholder now that in -- I'm sure the Technical Support Document, that for awhile, it was -- the Department was just showing the mean data, the mean value in these cumulative probability charts and you're showing the median now. I appreciate that from a stakeholder viewpoint. I think it really gives -- because there can be so much scatter data with a lot of this information, that gives you kind of a clearer picture of what's going on, and I really appreciate the Department doing this. Thanks.

MR. BROOKMAN: Thank you. Bob?

MR. McGARRAH: Bob McGarrah. Steve gave us a

number of $90 a year versus a $165 and a refurb cost of $500-600 versus $930. It would seem to me that just on a percentage basis that would drive that model significantly.

To the earlier gentleman's point of $5, this looks like it could drive it maybe $35. So that could have a significant difference, you know, as we readjust these.

MR. SCOTT: That's why it's important to get the best data we can.

MR. SACHS: Exactly.

MR. SCOTT: Because we're kind of on a knife edge here.

MR. SACHS: Exactly. Thank you.

MR. BROOKMAN: Okay. So any other comments on these slides? We're now on 25, I believe.

MR. SCOTT: Okay. And similar slide to the one you saw earlier, this one just happens to be for Payback and I assume most of the same comments would apply to it as to the previous slide.

Questions? No? Okay. We also show, besides in chart form, we will be showing the analysis in terms of set-ups where we've got all of the equipment compared to each other as well as by efficiency level and also both life-cycle costs and life-cycle cost

savings.

We also will show the -- this is of interest to some parties, at least, the percentage of units owned that would show a positive life-cycle cost savings. Similarly, for payback period, the percent of units with a payback period of less than three years. That may not be the period that you would all prefer but that's the one we're using at the moment, so maybe we should have some comment on that.

Finally, we've done a couple of life-cycle cost sensitivity analyses. We performed an LCC, and this is somewhat addressing Harvey's point earlier. We did use the high-growth and low-growth fuel escalation rate scenarios, at least, in the ANOPR. The choice of fuel escalation rate did impact the life-cycle cost of all of the equipment classes and it did have some -- make some marginal changes in what the minimum life-cycle cost efficiency level was -- sorry -- did not.

There was a small change on the payback period when we used a different price level.

Finally, we did take a look at the question of split incentives. We were talking about that earlier this morning where the bottler/vendor may or may not pay some of the energy costs, depending on whether -- what kind of agreement they had with the

customer at the site where the BVM is located and who do pay the electricity prices.

We have assumed for purposes of the ANOPR that the energy cost savings are transferred to the owner/operator through the coin box revenue allocation agreement and in effect the operator of the machine or the owner of the machine sees the effect of the energy savings, if any, back through the cash box revenue and so it’s as if the owner of the machine actually also paid the electricity cost.

We felt that that was in the spirit of what was trying to be accomplished with the proposed regulation.

We did do a sensitivity analysis of the energy cost savings. Rather than having it all accrue to the owner of the machine, we also did a 50/50 split and no surprise, the life-cycle cost savings to the owner/operator go way down. They drop in this particular case on the screen, on Page 30, from a mean of $382 life-cycle cost savings to a mean of $133 life-cycle cost savings. So it is -- that split incentive is quite important.

The problem is that we don’t know exactly how the savings actually are allocated and so it’s very difficult to address what the actual impacts are out in

the real world.

MR. BROOKMAN: Bob?

MR. McGARRAH: Bob McGarrah. With deference to my good friend Steve Cousins, I don't believe that the bottler or the operator or the owner of the equipment is going to see any real measurable benefit from the cost savings that are generated by more efficient equipment. It becomes caught up in the negotiations for the commissions and getting the site and that type thing.

I would find that to be a real challenge to even put a thought around that in talking to an awful lot of customers.

MR. BROOKMAN: How that might be structured?

MR. McGARRAH: Yeah. There's a high complexity to that and I'm sure that a very sharp operator could negotiate that into his contract and his commission rate, but in general, I think it's presumptuous to assume that the savings in energy is going to come back to the owner/operator in any significant form.

MR. BROOKMAN: Okay. Steve?

MR. COUSINS: No, I was just agreeing with Bob. He's right on both cases and for two reasons.

One is the energy subsidy is prenegotiated

and --

MR. BROOKMAN: And energy level, the expectation of an energy consumption level?

MR. COUSINS: It -- that doesn't even factor into it.

MR. BROOKMAN: Really?

MR. COUSINS: There are other variables that do factor in. The volume of the account, how much product, how large the -- how much volume we actually put through that account customer is a variable in there as well because what they pay for product is based on that volume throughput. So consequently, how much we would subsidize energy is going to be factored into that as well, and contracts vary in length.

There could be a three-year contract with a large accountant customer, not unusual and yet we really don't know what the cost of energy is going to be going forward. So there are assumptions that are made.

It's difficult to complicate it, to try to put a number around what that split is. I agree with Bob. We really couldn't begin to try to do that.

MR. BROOKMAN: So for taxicabs here in D.C., energy prices, gas prices are real high. You pay an energy surcharge, a gas supplement surcharge. You all

don’t have an arrangement like that?

MR. COUSINS: No.

MR. BROOKMAN: Nothing like that? That negotiated three-year agreement stays pretty fixed?

MR. COUSINS: Mm-hmm.

MR. BROOKMAN: Bob?

MR. McGARRAH: Bob McGarrah. Not to jump right away to a solution, but if there was a way that the energy companies who currently subsidize products like the USA products could put a subsidy out there to the bottler that would put out more efficient machines so that if you put a high efficiency machine out, that utility would provide some kind of an incentive to the bottler to (a) buy the machines and (2) place them, same concept with remanufacturing machines that are currently on location.

If the bottler sees a revenue coming in for installing an energy-saving product on an existing piece of equipment, they’d be much more inclined to do that. Current law says that the utility can only pay it to the subscriber to the utility or the person that pays the electric bill. That cuts the bottler out of any direct opportunity and the indirect opportunity, as Steve and I are violently agreeing on, is very nebulous.

MR. BROOKMAN: Trent?

MR. ROTH: This is Trent. I would agree with Bob's comments about when there needs to be incentives. The incentives out there are from energy suppliers that could help offset the costs of new innovation, it would be greatly appreciated and we would be willing to work with people to try to do that. I mean, from the manufacturing side, we've got a lot of ideas, it's just adding the cost.

One thing I would question is the payback period. Being that we've kind of established that through our interpretation of the formulas that really we're looking at the baseline being more Tier 2 than Tier 1, I challenge the ability for us to get to the higher levels and actually it's going to cost us more than what it probably did in the analysis here to go from a Tier 1 level to a Tier 2. That's why we're already at Tier 2 today.

So I would say the payback period may be much longer and actually the cost may be greater because we are looking at to get to the next levels, you're looking at variable capacity compressors, you're looking at more highly cost items than just ballasts and light switches because we've already pretty much played a lot of those out.

So I think your payback period may be much longer, not a 100 percent in the first year, just because of where the formula fell into.

MR. BROOKMAN: So in your written comments to talk about how those -- if those technology improvements would impact costs and payback period, to be as specific as you can, that would be helpful to the Department. Lane?

MR. BURTON: When the split incentive exists --

MR. BROOKMAN: Louder, Lane.

MR. BURTON: Sorry. When the split incentive exists and the person paying the energy bill doesn't select the machine, it's important for the Department to put a number on that and how -- when they analyze winners and losers, such as they do in the Manufacturer Impact Analysis, they should also look at those customers who don't get to make that decision, what proportion of the market they are and we've talked about how in this one they're a large portion of the market, and how they will be affected by a higher or lower standard.

MR. BROOKMAN: Okay. Thank you. Steve Rosenstock.

MR. ROSENSTOCK: There was an issue of

incentives to bottlers. Yeah. By the way, there are many lists. There are national lists of what kind of incentives are out there, like desireusa.org is a very nice database, I have to say.

Yeah. It's just really -- I don't know where all the bottlers are located, but for -- it's just not -- from a regulatory basis, regulatory commissions aren't going to allow energy companies to provide incentives to entities that are out of their service territory. It just is not going to happen.

MR. BROOKMAN: Thank you. Okay. Yes, Tom Eckman.

MR. ECKMAN: Oh, yes, they will. It depends on where the benefits flow back to the utility.

MR. ROSENSTOCK: I'm sorry?

MR. ECKMAN: Oh, yes, they will. If the benefits flow back to the utility, they will allow it. It's just whether the benefits flow back to the utility.

MR. ROSENSTOCK: I'm not aware -- Steve Rosenstock, EEI.

MR. ECKMAN: How do we do the golden carrot?

MR. BROOKMAN: It's another form of --

MR. ROSENSTOCK: Hold on a second, hold on a second. Steve Rosenstock, EEI. That is a different

type of thing all together. That was a research and development type of cooperation where utilities voluntarily, again that was voluntarily that they joined together with other entities to create a new product.

I'm talking about a utility incentive program which is --

MR. BROOKMAN: You would expect they would derive the benefit?

MR. ROSENSTOCK: Right.

MR. BROOKMAN: That utility. Harvey, go ahead.

MR. SACHS: This may be the first time in 30 minutes or so I've disagreed with Mr. Rosenstock, but in point of fact, as Gary and others here were involved, I was involved with the Golden Carrot. That was a per refrigerator incentive paid for products delivered. It was paid to Whirlpool in Michigan by utilities distributed as far as California and New England. It was a direct incentive for a piece of equipment paid to an entity outside of the service territory.

MR. BROOKMAN: Go ahead, Gary.

MR. FERNSTROM: I'd like to agree with Steve Rosenstock. The state utility commissions are really

only wanting utilities to pay for the benefits that accrue to customers those utilities serve. If it turns out that, you know, you can do something that has a national impact, that's wonderful and that's not prohibited. However, the evaluation credits the utility with the benefits that accrue to its customers.

MR. BROOKMAN: Steve's talking about a rule of thumb, so to speak.

MR. FERNSTROM: Yes.

MR. BROOKMAN: Yes. Okay. Great. So then we've gone through several slides and lots of data. Maybe there's some additional comments on split incentives. I think we've covered that somewhat, and this whole section, Life-Cycle Cost and Payback Period Analyses, final comments on those, on all of this information.

(No response.)

MR. BROOKMAN: Okay. So I'm going to suggest we take lunch now and before we go to lunch, I want to thank you all. This was a very, very constructive comment period here. We got a lot of good information for the Department.

As I said, the DOE cafeteria has closed for renovation. There is a small cafeteria one floor below us where some of you went for coffee in the morning

coffee break. That, I suspect, will be very crowded.

(Whereupon, at 12:17 p.m., the meeting was recessed for lunch, to reconvene this same day at 1:30 p.m.)

A F T E R N O O N S E S S I O N

(1:30 p.m.)

MR. BROOKMAN: Okay. Let's do begin, folks. Okay. So we are picking up where we left off just prior to lunch, and let me note again that at the end of the day today, there's an opportunity for any of you to raise any additional issues or comments that you wish to do, wish to say for the record, and that's especially helpful for the Department, if there are, for example, issues that you've flagged for their consideration.

So then Mike Scott is still up. Mike, to you.

National Impact Analysis

MR. SCOTT: I'm back. All right. We're going to be talking about the National Impact Analysis and Shipments Analysis, and this is really -- really has a couple of purposes.

The Shipments Analysis is to estimate the refrigerated beverage machine vending equipment shipments over time and that's for the purpose of estimating the national energy savings from BVM equipment at different efficiency levels and to estimate the national economic impact on the nation,

net present value of the adoption of that equipment standard.

The National Impact Analysis process has a couple of stages. The first of those is to do an analysis of potential shipments. That's fed by a life-cycle cost analysis results and some other inputs that I'll go into and the shipments model.

The Shipments Analysis model -- I'm sorry for the busyness of this slide. It really is quite a bit of looping that occurs one year to the next, so that's why we have all the circularity in the slides. I'll try to start here on the left-hand side.

For the purpose of doing the Shipments Analysis in the ANOPR, what we did was we took some industry estimates of the shipments, primarily from 2002 through 2005, which provided us some start-up numbers. In those start-up numbers, we did notice the decline in shipments that was alluded to this morning and we'll be talking about that in a minute, and then we had to allocate those as shipments to new locations and shipments that are essentially replacements.

For the new shipments going -- shipments to new locations going forward, we used the population forecast for the U.S. and allowed shipments at new locations to grow at the same rate as the population,

assuming that what would happen is even if you were taking equipment out of the inventory in some places, you'd be putting it in, in other places.

We also had an initial BVM stock that in 2007 we thought was 3.7 million units. We heard some information today to suggest it's somewhat smaller and we'll be looking at that information as it comes in.

We then had an estimated lifetime of the stock that we talked about this morning. What we did was we took the initial stock, aged it, allowed some of it to fail in each year, kept track of it by vintage, that is by individual year classes, going forward, and replaced that stock as it went out of the inventory, so that you had a more or less continuous stock going forward.

In addition to that, we had to have some allocation of all those shipments by equipment classes and we looked at the distribution between the years 2002 and 2005 to get a sense of what the total shipments were by equipment class and size and then took -- allocated that going forward as well.

So there are a number of inputs to that model. The first of those was the distribution of sales by equipment class and purchaser based on State of the Vending Industry Report of 2006, a couple of

industry contacts and a couple of assumptions for capacities, and we did talk about that this morning, and there will be a point in here where we'll stop talking and we can talk about it any further that you want.

The initial stock, we know, declined from between 2000 and 2006. Again, we, for purposes of the ANOPR, we thought it fell from 4.2 million to approximately 3.7 million, may be lower than that. Sales of new equipment, we assumed -- now when we say new equipment, we mean equipment to basically new locations, and we didn't see any of those, based on the historical record between 2000 and 2006, at least we couldn't find room for that equipment, but we thought that there probably would be some going forward.

So we assumed a number of about 50,000 units for 2007 and then we grew that at two percent per year thereafter, based on population growth.

For replacement equipment, we assumed that all sales between 2001 and 2006 were essentially for replacement and to account for the loss of stock from 4.2 million to 3.7 million, that translated into a replacement number of shipments from about 150,000 units in 2001 to about 67,000 units in 2006.

Our future replacements were based on the

existing stock and then on again a viable distribution of stock survival with a 14-year average life and a replacement of the earliest units at a rate of five percent per year.

And out of all of that came a set of projections, all of which will obviously change now for the Notice of Proposed Rulemaking and for the final rule, but going forward, we had, for each of the six equipment classes, that is Class A units, large, medium, small in indoor locations, we allocated the 10 percent of the market that was believed to be those equipment

that kind of equipment going forward, as you see in the slide on Page 7, and then the indoor/outdoor equipment, again large, medium and small, representing 90 percent of the market going forward.

We didn’t have a good breakdown for small, medium and large for each of those equipment classes, so we simply assumed one-third, one-third, one-third, which is why you get that very parallel-looking outcome.

Okay. I probably ought to stop right there and see if there are comments on the Shipments Analysis or any additional data that people want to bring to the table.

MR. BROOKMAN: Right. And particularly maybe you could go back to 6.

MR. SCOTT: Sure.

MR. BROOKMAN: I want to make sure we hit these four classes, Distribution of Sales by Equipment Class Purchaser, Initial Stocks, Sales of New Equipment, and Sales of Replacement Equipment, and while I think we've covered some of this in part, other comments on what's here in this slide?

Yes, please, Glenn.

MR. SELFRIDGE: I don't know whether this is permanent or not, but there has been a major shift in the small sales towards the Type A machine. So your statement of 90/10 for the existing population is correct. Going forward, it may not be.

MR. SCOTT: Okay. Any ideas about what the trend in that might be from the manufacturers would be helpful.

MR. SELFRIDGE: All I can tell you is what it is now and it's around 60/40, 50/50, in that range.

MR. SCOTT: Okay.

MR. COUSINS: And I think right now -- Steve Cousins. I think right now, the majority of purchases are Type A and I think for the short-term future, they will continue to be Type A. The majority, that is.

The comment I was going to make on this slide is I think it's a mistake to expect that there's going to be annual growth in the population of vending machines of any -- at any level. So I don't think there's going to be a two percent a year growth in new.

MR. BROOKMAN: You think it's going to be flat?

MR. COUSINS: I think it's going to be flat. I think essentially it will be replacement machines but no additions beyond replacements.

MR. BROOKMAN: I noted that Mike was saying that they didn't -- they had a hard time accounting for new locations. So that goes to your point.

MR. COUSINS: Yeah.

MR. BROOKMAN: Bob?

MR. McGARRAH: Bob McGarrah. I agree with Steve again. The net new business, which is the total number of machines on location increasing, is probably going to stay flat and the new machines will be going to be replacing machines that are being taken out of service and basically junked.

And I'd like to get the other folks' thoughts on this one-third, one-third, one-third. If we in fact are going to 50/50, toward the Type A machines, they're generally a larger machine. So that would kind of say

that the one-third, one-third rule doesn't apply certainly not going forward, and I just wondered if you guys could comment on that.

MR. BROOKMAN: Glenn?

MR. SELFRIDGE: Yeah. I'll give it a shot from my point of view. The small machines were never popular, 10 percent. The very large machines, up to about 2000, --

MR. BROOKMAN: Glenn, I'm sorry, you've got to get close.

MR. SELFRIDGE: The very large machines, up through about 2000, were extremely popular, but the last five years, it's been medium, probably 80 percent.

MR. COUSINS: Steve Cousins. Yes, that has been the case, Glenn, and that will continue to be the trend, that the extremes of small machines and the small machines, you just can't -- the finances just don't work with the small machine.

We have difficulty placing the large machines and that's why, you know, predominantly the purchases have been about 80 percent medium.

MR. BROOKMAN: Thank you. Trent?

MR. ROTH: This is Trent. For glass fronts, it's primarily glass fronts, I mean it's large. I mean, we fit the large category. Probably 90 percent

or greater of our sales are in the large category in glass fronts. That's primarily where the marketplace is today.

Moving to the new volume capacity, I mean that's what this is based upon, so it's primarily large, medium, very few small today. So the one-third, one-third is not accurate.

MR. BROOKMAN: New volume capacity, that is the machines are being reconfigured so that --

MR. ROTH: We're using volume as a measurement of capacity rather than can capacity which has been the total. The machines are much larger refrigerated volume. Underneath that would be very -- we're very high end. I mean, when you look back at the old stack versions, I mean yeah, even one-third, one-third, one-third wasn't correct then.

Moving to glass fronts, we're 90/10 on the large side.

MR. BROOKMAN: 90/10. Okay. Glenn, close to the mike.

MR. SELFRIDGE: Just one more industry input. He builds the big one and the medium, we build only a medium and it's 100 percent of our business right now.

MR. BROOKMAN: Okay.

MR. SELFRIDGE: Only Type A machines.

MR. BROOKMAN: Only Type A.

MR. SELFRIDGE: Between the two of us, it's probably 50/50.

MR. BROOKMAN: That's interesting. Okay. Yes, Bob?

MR. McGARRAH: Bob McGarrah again. With regard to small, medium and large, that doesn't reflect in any way the energy consumption. I think we need to address glass fronts energy consumption versus a large machine of the conventional solid door design. That becomes a factor as you build in these models, as you know.

MR. BROOKMAN: Okay. Okay. I assume we account for that.

MR. SCOTT: One other thing. When we had the sales of new equipment, 50,000 a year, for sort of new locations, is that a reasonable number? Should it be higher? Should it be lower? Since it isn't going to change, I want to get it right.

MR. ROTH: This is Trent. You're saying annual sales of 50,000 or growth?

MR. SCOTT: Annual sales of new machines -- of new equipment to new locations as opposed to replacements.

MR. ROTH: No, I would disagree.

MR. BROOKMAN: I thought it was zero.

MR. SCOTT: Zero is what you say. Okay.

MR. BROOKMAN: I'm looking at Steve.

MR. COUSINS: New locations, we're at saturation.

MR. SCOTT: All right.

MR. COUSINS: It's not going to be new locations.

MR. BROOKMAN: Okay. And so that 50,000 number is also zero.

MR. COUSINS: If you're talking new locations, it would be zero.

MR. BROOKMAN: Okay. Go ahead, Trent.

MR. ROTH: This is Trent. One thing to comment on. Using populations is probably not a great way to -- it's manufacturing locations, school locations. It's location placements rather than population that drives this.

So as we lose manufacturing to outside companies, it's a big placement of vending machines today. So that's where those go back into the pool and they get redistributed into new locations, but really the manufacturing, the downfall of that in schools and other places that don't allow vending machines is what's impacted the placements. It's not population.

MR. BROOKMAN: Okay. Thank you.

MR. SCOTT: That's very helpful.

MR. BROOKMAN: Did you want to -- let's take a peak at 7 and just look at the shipment model results and see if people would like to comment on what these projections.

MR. SCOTT: I think I can tell you, as you're looking at those, that that's going to -- that's -- those numbers are all going to be much smaller based on what I've heard here.

MR. BROOKMAN: Right. Okay. Okay. So we'll leave that for the next round then of populations.

MR. SCOTT: Okay. Now we move on to the National Impact Analysis and unfortunately that's even a little bit more complicated, at least as far as the slide is concerned. So again, I'll talk you through it.

The left-hand side, we're basically dealing with inputs from the LCC model and much of the purpose of using that information is for the purpose of taking the individual equipment classes, the three sizes of As and Bs, and trying to allocate them across efficiency levels in a base case that isn't affected by the regulation.

So if we have real data on that, that's what

we'd prefer to use. In the absence of real data, which is our current situation, what we do is we use an economic model to in effect replicate what we think the market would ask for, and the way we do that is to say you have classes of customers who have different sensitivities to first costs and different sensitivities to longer-term costs and the annualized costs that they see, based on the LCC analysis, is what would guide their choice of a more efficient machine versus a less efficient machine. So it is an economic calculation.

It's pretty complex. It comes from the NEMS model, the National Energy Modeling System model, and it has six classes of consumers with different levels of risk, and it has them allocated across the marketplace.

What you find in that model, if you look at it, is that many of the customer classes are actually fairly sensitive to first costs and it's intended to represent the entire marketplace for energy equipment in the NEMS model, so it might be that we'd have a somewhat different set of risks, particularly for large commercial buyers. So that may be worth a couple of thoughts.

Once we get that initial distribution by

efficiency class, then that gets played in with the Shipments Analysis, the total number shipped, and each of the classes of equipment going forward gets allocated to efficiency levels. Okay? So you have 10,000 units shipped in some particular year, some percentage of those are going to be one efficiency class, another efficiency class, another efficiency class, and so on.

Those classes, however, because we didn't have information on how that might change over time, are fixed, and I'll show you that in a minute and we'll have -- I'll have a question about that.

Oh, the other thing is that the existing stock of units also gets allocated by efficiency level and as the old stock goes out of the system at its efficiencies, it's replaced by new stock at its efficiencies, and the new equipment is much more efficient than the old equipment, so that happens, and it's kept track of again by vintage. So equipment that goes out of the stock in, say, 2015 is replaced in 2015 by more efficient equipment which in turn is replaced over the years by equipment in 2021 or 2027.

Clear as mud? Keep in mind that what we're doing basically is taking a stock of equipment that exists, trying to figure out what its efficiency mix is

and then replacing it over time, in addition to possibly adding to it.

MR. BROOKMAN: Steve?

MR. COUSINS: Steve Cousins. I expect that the reality is that any machine shipments in any year will all be the same efficiency class. Unlike the domestic marketplace where the consumer decides, you know, what he's going to purchase and you've got a wide range of consumer preferences, that's not really the case here.

So for example, the Coca-Cola system, the machines that we buy will all essentially be the same efficiency class.

MR. BROOKMAN: You'll make a determination about the optimal point between price and performance --

MR. COUSINS: Right.

MR. BROOKMAN: -- and essentially buy all of them?

MR. COUSINS: Correct.

MR. BROOKMAN: All of them, and that will not vary -- I'm not going to say --

MR. COUSINS: Well, yeah, you understand what I'm saying?

MR. BROOKMAN: I do. Okay. Nina?

MS. TARLEY: PepsiCo right now mandates that every single machine, vending machine that's approved by us is Tier 2 EnergyStar. So every single machine is Tier 2.

MR. BROOKMAN: Okay.

MR. SCOTT: And is it Tier 2 exactly or Tier 2 or better?

MS. TARLEY: Tier 2 is mandatory. Above and beyond depends on the rebates.

MR. BROOKMAN: So I want to make sure you get a chance to make that point one more time today. Okay. So thanks for that comment, Steve and Nina, both.

MR. SCOTT: One more follow-up question, if I might, from up here. Is there any reason to believe that there will be variation across the various classes of folks who own machines?

I realize the bottlers are a huge part of that, but what about distributors? Would they have maybe a different price point than you guys would?

MS. TARLEY: Is that a question?

MR. SCOTT: That is a question.

MS. TARLEY: Well, I can only speak for PepsiCo obviously, but nobody, none of our bottlers are allowed to buy anything that currently does not appear in our approved equipment list.

MR. SCOTT: Okay.

MS. TARLEY: And everything on the list is Tier 2.

MR. SCOTT: Okay. Thank you.

MR. BROOKMAN: Okay. Yeah. Go ahead, Trent.

MR. ROTH: This is Trent. Distributors today don’t mandate Tier 2 or EnergyStar. Only if they’ve had some state agency or customer demand it, that’s when they put it in the marketplace.

They’re a small percentage of business but generally what follows suit is if we’re building a machine for the bottlers who are asking us to meet certain energy standards, chances are that machine’s going to be what they want because they’re going to drive efficiencies to our plant but it’s not always the case.

So, I mean, today there is pressure to keep some of our models out there that we’d like to discontinue and we’ll actually probably use this legislation to discontinue models.

MR. BROOKMAN: You’d like to see everybody swept by the same wave.

MR. ROTH: Absolutely. Both that and the states to align because we’ve got a lot of energy pressures from states. We’re looking at this to help

us that way. But, I mean, yeah, I think you're going to see -- will some of them be better than others? Do we have some machines that go farther beyond Tier 2 than others? Yes, but they will meet a minimum standard of what the bottlers are demanding and that tends to be Tier 2.

MR. BROOKMAN: Okay. Thank you. That's helpful comments.

MR. SCOTT: Very helpful. Let's see. I think I'll just move on here.

MR. BROOKMAN: Yeah.

MR. SCOTT: Okay. We've actually talked about some of these things. We have the shipments, annual units shipped. We have total installed costs. I think we talked about that. Repair and maintenance, we've talked about. Annual energy use, we've talked about. Market shares by efficiency level I just tried to talk about. We talked about it enough, I think, to get a sense of what's actually going on.

One last thing is the standards, the last bullet on the slide, and that is how we treat the standards. The standard, what it does is it takes a roll-up approach; that is, you take whatever base market share is, say it's Tier 2, and the standard is established above that. It rolls everything from below

the new standard up to the standard but it doesn't affect anything that's better than the standard.

MR. BROOKMAN: Yes, Nina?

MS. TARLEY: I'm sorry. Minor point but I want to build on what Trent was saying. We have some independent bottlers who buy whatever they want to buy rather than what we approve, and distributors, as Trent mentioned, and I suspect the majority of them might not buy the Tier 2 equipment just because it's more expensive. So I just wanted to make that point.

MR. BROOKMAN: Okay.

MS. TARLEY: Nina Tarley.

MR. BROOKMAN: A small number, though?

MS. TARLEY: Yes.

MR. BROOKMAN: Yes.

MS. TARLEY: A small number.

MR. BROOKMAN: A small number.

MR. SCOTT: Okay. The next point is the efficiency trends, and the point I was making kind of at the top of this was that the mix of efficiencies, whatever it starts at, in the absence of the rule, the way we've done this in the ANOPR is to hold the mix of efficiency going forward at constant.

I've heard some discussion this morning that some of the equipment might become more efficient over

time in the absence of a rule and if there is any information out there that can be brought to bear on how that efficiency mix might change over time in the absence of a rule, we'd like to see that because it would help with the analysis.

The energy price escalations, we talked about that this morning. It's annual energy --

MR. BROOKMAN: Let's pause for a moment.

MR. SCOTT: Sorry.

MR. BROOKMAN: Yeah. Go ahead.

MR. ROTH: This is Trent.

MR. BROOKMAN: Trent.

MR. ROTH: When we're looking at this rule, I may need clarification. When this rule is put into place, do we see this rule changing every few years to increase to a new level? Maybe I'm wrong.

If we establish it today at baseline, what I see is the EPA has the EnergyStar Program. EnergyStar is a voluntary program which today in our industry it's a mandatory thing we do. I mean, it's something that is standard, unlike a consumer product where it's voluntary, it's really not voluntary in our industry.

So I see a baseline coming out here for DOE having minimum standards, can't make anything that uses this much energy or more, but then I expect the EPA is

going to come in behind and say, okay, for those machines higher than that, to achieve -- correct me if I'm wrong, but they're going to have another threshold that's going to be above the threshold that you currently have today, hopefully not too high because it is again something that we almost mandate like legislation.

We see that driving us to the next standard or driving us higher and testing our ability to try to get to more energy efficiency. I don't think the DOE in this legislation is going to be that driver. I think it's going to be really EnergyStar pushing us to that next level, and I'm not going to say that this rule is not going to come out and in five years you're going to say we need to be Level 1 or three years from now you need to be Level 2 and there's a long plan. That's okay and then that will drive it as well, but that wasn't my understanding of how this ruling was.

MR. BROOKMAN: I'm not the only one that -- I may be the only one that doesn't know this, but why is it that the industry has taken this voluntary program and accepted it de facto as being all mandatory or almost mandatory? Maybe we'll hear from Trent first and then I'll come back to you since he started this.

MR. ROTH: It's the major bottlers. I mean,

they're very concerned publicly about being energy efficient.

I mean, there isn't many products out there today where you've got billboards on there with such large companies as Coke and Pepsi. I mean, it is very important to them and they've taken corporate stances outside of vending that they're going to be very good, you know, stewards of the industry.

So, I mean, that's why when you get a program that's EnergyStar, you need to mean it. I mean that's -- they're going to help drive that.

MR. BROOKMAN: Okay. Steve, pardon me, you're next.

MR. COUSINS: Yeah. I was just going to say that because of the very nature of our business, placing vending machines in very public places and government buildings and schools and so forth that are very sensitive to the Federal Energy Management Program and some of the Executive Orders and they very much want to have EnergyStar commodities, energy-consuming commodities in their locations, they drive us to place only EnergyStar machines and then when you have very sensitive customers, like Walmart and McDonald's and others, who are stating publicly that they are going to only want the most energy efficient commodities in

their locations and stores and so forth, we're in a situation where our customer base is forcing us to only place EnergyStar equipment.

So in essence, it's not really so much voluntary as really if we intend to stay in the vending business, then EnergyStar becomes a mandatory pillar.

MR. BROOKMAN: It's part of your customers' expectations.

MR. COUSINS: Right.

MR. BROOKMAN: Okay. And it's one of your selling principles. Gary?

MR. SELFRIDGE: So Doug, this is Gary. I'd just like to make the observation that what we're talking about here is so commendable, I wish it could occur across a lot more products and industries.

MR. BROOKMAN: We just need to push for these companies to get more market share, right? I just thought I'd offer that as one of the ways -- go ahead, Steve.

MR. FERNSTROM: You would be drinking a Pepsi.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Just to let you know, once DOE sets a standard, by federal law, they're supposed to re-examine the standard once every five years to see

if it should be updated or improved. That's just -- once any product has a standard, DOE is supposed to re-examine every five years or so.

MR. BROOKMAN: Okay. So thanks for those comments. Charlie?

MR. LLENZA: And it doesn't stop at another EnergyStar tier increase.

MR. BROOKMAN: Yeah. Steve?

MR. COUSINS: I know this is not the forum to make this statement. Steve Cousins here. If we aren't collectively careful about how we go about doing things, particularly with EnergyStar, we may kill the vending business. I mean, if -- we're already at a point, in my opinion, where we've pushed efficiencies for vending machines to the extent where if we push it further, it no longer becomes cost effective to purchase and place a vending machine.

So if -- we're in a situation, just as Pepsi is, where we have to buy and place EnergyStar equipment. If the equipment -- if we cannot find cost-effective ways of becoming more efficient, then essentially we kill off the vending business.

MR. BROOKMAN: Thank you. Please. Your name and organizational affiliation.

MS. DUFF: Rebecca Duff with ICF. I work on

the EnergyStar Program, so I figured this is probably a good time for me to --

MR. BROOKMAN: On behalf of EPA?

MS. DUFF: On behalf of EPA, yes.

MR. BROOKMAN: Thank you.

MS. DUFF: I wanted to say one thing, clarify one thing, is that, you know, just because the -- if the minimum standards were to go to a Tier 2 level or higher, that doesn’t necessarily mean that EPA will have an EnergyStar Program at that point.

You know, we go through the same process of talking to folks in industry and determining if it’s cost effective or not and there have been actual product categories where we’ve left the marketplace. For example, traffic signals and transformers, we actually decided to sunset the program because we see that the market is transformed.

So actually, -- so to speak. So actually, you know, I just want to put that out there, that I don’t want people to be afraid that, you know, if we push the limit a little bit on the regulatory side, that we’ll actually come in and automatically introduce a more stringent EnergyStar standard.

I think it depends on the marketplace and the products and the available technology.

MR. BROOKMAN: Thanks for that input. That's helpful. Okay. So -- yes, did you have an additional comment, Nina?

MS. TARLEY: I just wanted to say -- Nina Tarley -- that I definitely agree with my friend, the competition, that we have to be careful about that. We already picked all the low-hanging fruit and the further we go, it's more difficult to get, to make it both energy efficient and cost effective,

MR. BROOKMAN: Okay. Good.

MR. SCOTT: Okay. We're up to Page 10 in the National Impact Analysis now, continuing the inputs. I'll just power through most of this.

We've looked at the future trends and average equipment efficiency improvement, not forecast. We're not talking about forecast but we've talked about that a little bit here.

The energy price escalations, again we used the 2007 Annual Energy Outlook. The electricity website. One thing we do need to do to show the annual energy savings is show the energy savings on a Btu basis at the national level and there's a conversion and distribution process of energy from sort of the burner tip at the coal plant or the nuclear reactor or the solar panel going out to the ultimate consumer and

so when we have energy savings at the consumer level, there's actually a multiplier on that for national energy savings, the energy you didn't have to consume in order to make that electricity, and the site to source conversion factor takes care of that. That comes from also the Annual Energy Outlook.

Then finally, we're obligated by terms of OMB's Regulatory Analysis Guideline A-4 to use as our discount rate for National Impact Analysis seven percent and three percent real, that is adjusted for inflation, going forward.

Future expenses are all discounted in the ANOPR to 2007. The National Present Value Analysis accounts for all equipment that has been shipped by the end of the regulatory period from 2012 to 2042 and then we have to account for any savings that occur after that, so it takes awhile for the old equipment to go out of the inventory and we account for that.

MR. BROOKMAN: So these inputs amount to really a series of explanations and assumptions that are in place.

MR. SCOTT: Correct.

MR. BROOKMAN: So that any comments on these would be helpful.

(No response.)

MR. BROOKMAN: Okay. Moving forward.

MR. SCOTT: Okay. We did talk about the base case and standards shipments forecasts here, Doug. I don't think there's anything new on this slide. We've already had the discussion of how things would be shipped in the absence of --

MR. BROOKMAN: You can see the specific invitation for comment on the basis of our forecasted shipments at the bottom of the page there, the bottom of the slide.

Any additional comments on that? Harvey Sachs.

MR. SACHS: With respect to the -- Harvey Sachs. With respect to the present slide, Number 11, I am hearing that this can be simplified by not worrying about market shares by efficiency level for annual shipments, at least the cohort will all be, for example, at EnergyStar Tier 2, from now through 2012. There might be a few better and a few worse, but it's basically a shipment model that's tightly constrained to what both buyers are asking for.

MR. SCOTT: I was hearing comments something to that effect.

MR. SACHS: Thank you.

MR. BROOKMAN: Other comments on base case

standards case shipments forecasts?

(No response.)

MR. BROOKMAN: Okay.

MR. SCOTT: Okay. Going on to the next slide then, the next issue is Issue 6, Differential Impact of New Standards on Future Shipments by Equipment Classes, and there are two points here.

The Shipments Model presumes that the relative market shares between equipment classes stays constant over time, we've talked about that, and then DOE is concerned that higher standards set for specific classes of equipment, if any, could shift the market to use other equipment that may have greater energy consumption.

So DOE invites comments on the potential for a standards-driven market shifts between equipment classes, say from indoor/outdoor machines to indoor-only machines or from one size to another size, if there were different costs associated with different kinds of machines.

MR. BROOKMAN: So do you anticipate that there might be standards-driven market shifts between equipment classes? Glenn? Close to the microphone, please.

MR. SELFRIDGE: As we discussed a little bit

earlier, that has already occurred.

MR. BROOKMAN: Yeah.

MR. SELFRIDGE: Major shift from Class B to Class A.

MR. BROOKMAN: Yeah. Thank you. Please, yes. Trent.

MR. ROTH: I agree the shifts occurred and it's been drastic. I do think, though, there's new equipment coming out in a few years that will be questionable where it ends up and in which class because we are -- what's driving change in our industry today is package, packages, and typically your closed front machines, what we call stack machines, vent 20-ounce bottles and 12-ounce cans. They're not very good at vending anything else.

Well, packages have changed a lot in the last few years. Just walk in anywhere and packages have become the branding. So as this looks at it, we're going to have to look at ways to replace those machines that are traditional stack machines with probably products similar to what we have today in glass fronts, uses multiple shelves rather than serpentine or stack-type, stack a bunch of cans, you have a variety of products in there. So that will change and then we'll start to blend and confuse those categories a little

bit.

I think the capacity is going to be very large, large or to the medium, as the competitors have as well, but I think the class may all shift to that type of scenario rather than the closed fronts, but they're going to be indoor/outdoor machines and today you build an indoor/outdoor machine, it's possibly just going to -- it's classified as that.

Well, if you start to think of everything behind the door as being very similar in design, those machines could go from indoor to outdoor locations easily, more easily and that could blur this.

I'm giving you a complicated answer, but I do see technology changing in the way package design and vending machines are changing.

MR. BROOKMAN: So can you speculate how that will -- will that impact placement?

MR. ROTH: I don't think it will impact placement. I mean, I think the placements are again driven by manufacturing locations and school locations. It's going to be the type of machine that's built that could go into a more varied -- today, you can't take a glass front, for example, and stick it in a park because it will get vandalized, but that glass front, the same type of design, could be put anywhere if it

was an indoor/outdoor-type machine that had other security features.

So I'm saying as a class could change the way you have applicable places to put them. It's not necessarily that the placements are going to change.

MR. BROOKMAN: Glenn, did you want to follow on? Close to the microphone.

MR. SELFRIDGE: DOE's approach to this thing has been to define the Class A and Class B based on fully cooled or not fully cooled and the scenario he's talking about is still a Class A machine but it's driving industry more away from the Class B.

MR. BROOKMAN: Thank you for that clarification. Bob, and then I'll come back to you, Harvey.

MR. McGARRAH: Bob McGarrah. I'd just like to make a point. We see the industry morphing as these two gentlemen said. They're the manufacturers. They're morphing around the package size. Remember earlier that Tina said that -- Nina, I'm sorry.

Nina said one of the reasons the machine population is shrinking is because of vandalism and as that becomes the tipping point for pulling machines off location, they'll go back to the manufacturers and have them make a machine with tempered glass, with a cage or

some new innovation.

So there's this constant morphing to address marketplace conditions that are limiting the placement of machines today. So it's a very moving target and, you know, we've been addressing that, some of us, for 30 or 40 years now.

MR. BROOKMAN: Okay.

MR. McGARRAH: So we have to factor that in and I think the manufacturers are trying to keep the rules from being so restrictive that that morphing can't take place. It has to take place, as we're hearing from the Cokes and Pepsis, to make the marketplace workable for whatever's coming down the road.

MR. BROOKMAN: Okay. Thank you. Harvey Sachs.

MR. SACHS: Harvey Sachs. I want to thank the manufacturers for helping me understand that the market shares are dynamic and can continue to shift. That's the squared bullet Number 1, the top one.

No one that I have heard has suggested that anything in this standards process would contribute to that shift, that the shift is being driven by market factors, by packaging changes, by vandalism, by a number of other things, but relative to those large

factors, the differential effect of first cost changes due to differences in the energy standard has not been mentioned.

So I just want to stress that whether Bullet 1 is correct or not is not informed by Bullet 2.

MR. BROOKMAN: Okay.

MR. SACHS: Thank you. Perhaps my separation is wrong and the manufacturers can help me understand that better or their customers.

MR. BROOKMAN: Bullet 1 being that the relative market shares between equipment classes remains constant over time, that as being one of DOE's operating assumptions.

MR. SACHS: And that's been challenged broadly.

MR. SCOTT: I think we'll probably change that in the next go-around.

MR. BROOKMAN: Okay. And the second point being the standards-driven market shifts between equipment classes are not as likely to happen as market-driven or -- wait. It's clearly subordinated by market-driven factors. Okay. Okay.

So do you agree with that interpretation? Several heads nodding up and down, yes. Okay. Okay. Very good. Then let's move on.

MR. SCOTT: Okay. I'll just wrap up here with a few just quick examples of what the output looks like.

On Page 13, what we have is the cumulative source energy savings, that's multiplied up energy savings, measured on the left-hand axis, and not surprisingly, since this is an energy standard, that the amount of energy savings increases with each level of the standard.

On the right-hand side, you see the National Present Value of the discounted value of those savings compared with the discounted value of the costs of the additional equipment and that increases for awhile and then it bends over and in this case falls off fairly sharply in that last level.

So you will get analyses that look something like that.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock. Yeah. This is over the 30-year period, 2012 to 2042, correct?

MR. SCOTT: Yeah. The energy savings shown are 2012 through 2042 and the net present values I alluded to before because of the carry-over of the last equipment is through 2062.

MR. ROSENSTOCK: Now, the other question I

had was that was kind of two lifetimes basically when you say the typical lifetime was 14 years.

MR. SCOTT: Right.

MR. ROSENSTOCK: If the lifetime should go down based on manufacturer/bottler data, will you keep that same analytical period because it could be three lifetimes in that case?

MR. SCOTT: We would have to go through 2042 because we have to do the 30 years. That last piece might shorten up some.

MR. BROOKMAN: I think it would be useful to add this time frame to this slide before you post it. Okay, okay.

MR. SCOTT: All right. This is an example of net present value results for a single level for a single piece of equipment and what you're seeing there -- and this won't look the same in the future because of the assumptions we will now be making about increases in the size of the market.

What you see there is some net savings on the top and below the zero line, you see the costs of the equipment necessary to achieve that, and then the difference between them goes up for awhile and then when you get out past 2042, then you start seeing the equipment going out of the inventory and then the

savings drop off. So that's how to read that slide.

And then finally, just to tell you what we found in the ANOPR analysis, we find that the National Energy Savings for the period 2012 through 2042 range from .05 quads at Level 2 which is the lowest level beyond our baseline to .39 quads at Level 8 which is the maximum efficiency level when all the equipment classes are summed together.

The range of net present value savings over the period, actually it's 2012 through 2062, the seven percent discount rate, is anywhere from a loss of 2.1 billion at Level 8, you recall that that fell over pretty sharply toward the end, to 313 million plus at Level 5 which is sort of the maximum level.

The range of net present value savings at three percent is roughly twice that simply because of the discounting factor and that is it for Results. Let's see if we're open for any other issues.

MR. BROOKMAN: Comments on the Results page, especially Tom Eckman.

MR. ECKMAN: Given the change in the market share between A and B and the differential mix between medium, large and small, I think these are probably illustrative but not anywhere close to the numbers we're going to see in the end.

MR. SCOTT: No, absolutely correct. The final numbers will probably be quite a bit different.

MR. ECKMAN: Yeah.

MR. BROOKMAN: Thank you. Harvey Sachs.

MR. SACHS: Harvey Sachs. With reference to Slide 13 and given the comments about being illustrative, do you happen to remember if that was a three percent or --

MR. SCOTT: This was a seven percent, I believe.

MR. SACHS: Thank you.

MR. BROOKMAN: So then final comments on National Impact Analysis Results before we move on.

(No response.)

MR. BROOKMAN: Thank you, Mike. Sriram?

MR. SOMASUNDARAM: Okay. Now for the real story. At the end of all these analyses, at this point, I'm going to talk about what we will do after this meeting in terms of the Notice of Proposed Rulemaking Analyses, revisions to the present ANOPR Analyses and so on, but I wanted to take some time to present the candidate standard levels that we will analyze further in that ANOPR stage and wanted to open that up for comments and discussion because that's the crux of the whole analysis here, the results of these

analyses.

So we'll get hack to the steps that we will be taking in the ANOPR Analyses in subsequent slides, but I want to -- so like I said, the revisions to the ANOPR Analyses will include changes or updates to all the steps that we've talked about this morning and this afternoon, starting with the Engineering Analysis, the Life-Cycle Cost and Payback Period Analyses, as well as the National Impact Analyses, following comments from you all, and revising any data or updating any of the inputs to address those comments.

So this Slide Number 4 has the first question to the stakeholders in terms of what do you think of the candidate standard levels that DOE has selected at the end of the ANOPR Analyses?

Like we said before, the baseline level is the Level 1 that all the impacts, costs and savings, are compared to, and there are seven additional proposed efficiency levels, Levels 2 through 8, from which DOE will select a set of candidate standard levels, and they will make that selection for both equipment classes, Class A and Class B, on the basis of the criteria listed here under the third bullet.

Some of the criteria that we have used in the past and will use in the present analysis are maximum

energy savings, maximum life-cycle cost savings, maximum efficiency level that still has positive life-cycle cost savings, and the last one is also referred to as the rebuttable presumption payback according to the legislation, EPACT, where we look at the highest efficiency level with a simple payback period of less than three years.

So taking into consideration all those criteria that I just talked about, this is what we found as a result of the ANOPR Analyses, and again as you can see on this slide, the maximum efficiency level was the max tech level, the Level 8 that we have considered.

The maximum efficiency level with positive life-cycle cost savings are also coincident for both equipment classes. They're both at Level 7. The efficiency level with minimum life-cycle cost, as you probably noticed from one of the slides that Mike Scott presented, was a Level 5 for Class A equipment and Level 4 for Class B equipment, and then, finally, the highest efficiency level with payback of less than three years is Level 6 for Class A and Level 4 for Class B.

It just so happens that for Class B, the efficiency level is the same for both those criteria

there, but because our baseline was Level 1 and all these are 4 and above, we wanted to fill the gap to draw the curve with the selection of additional standard levels to get a smooth curve, and those are Levels 3 and 5 for Class B and Levels 3 and 4 for Class A.

I might mention here that, as we have stated before, Level 1 is the Tier 1 EnergyStar and Level 3 for both classes of equipment are Tier 2 EnergyStar. So what we're talking about in terms of 4, 5, 6, 7 and 8 are all beyond Tier 2 EnergyStar.

So that's Table 3.1 in the ANOPR Notice and we now present the corrected or amended Table 3.2. What we did here was -- and the two slides that follow this are the two curves that were handed out as a supplementary hand-out. So we'll get to that after this slide.

This one basically shows what DOE has done in terms of a preliminary selection of candidate standard levels that we will analyze further in the NOPR stage and we wanted to present both the intercept and the slope of each of these levels and the the X axis in this case is the refrigerated volume and the Y axis is the daily energy consumption of kilowatt hours per day.

And so as you can see, the baseline is Level

1 1 in both cases, both of the equipment classes. So
2 what I have in each column is the intercept and the
3 slope and within parentheses tells you what level that
4 corresponds to. So that's Tier 1, is the baseline.
5 Candidate Standard Level 1 is Level 3 which
6 is Tier 2 in both cases, EnergyStar, and CSL 2
7 corresponds to Level 4 in both cases, both equipment
8 classes. CSL 3 is Level 5 and so on. So you can see
9 the rest of them.
10 So then they were plotted. What we should
11 have added on these two graphs is the baseline curve
12 and let me add that.
13 MR. BROOKMAN: Those plots are there as an
14 attachment to the packets, I believe. If you look at
15 the back of the packet, --
16 MR. SOMASUNDARAM: The back of the packet has
17 three slides and that contains the graphs.
18 MR. BROOKMAN: The plots are attached.
19 MR. SOMASUNDARAM: That's right.
20 MR. BROOKMAN: But the matrix, Slide 6, the
21 figures are the same.
22 MR. SOMASUNDARAM: Yeah. The numbers are the
23 same.
24 MR. BROOKMAN: Yes.
25 MR. SOMASUNDARAM: We just show that

graphically.

MR. BROOKMAN: Charlie?

MR. LLENZA: Well, I just wanted to make a comment. We published in the Federal Register with the wrong numbers in the table. So this is the correction to that table.

MR. SOMASUNDARAM: Table III.2 in the ANOPR document.

MR. LLENZA: Right. And then we came up with additional -- the additional ones.

MR. SOMASUNDARAM: Presentation.

MR. LLENZA: Right.

MR. SOMASUNDARAM: Okay.

MR. LLENZA: You have the complete story and it will be corrected on the website, also.

MR. BROOKMAN: Thank you.

MR. FERNSTROM: So Gary Fernstrom. Just to be clear about this, the numbers that we have in the table on Page 6 of the large docket are correct and the ones in the attachment are correct?

MR. LLENZA: No, no, no, no. The ones published in the Federal Register Notice are incorrect and we just -- we had an additional two slides that we wanted to present and so what I did is I copied the corrected table and just added the slides in case the

slides got misplaced.

MR. FERNSTROM: Thank you.

MR. LLENZA: So the two tables are the same.

MR. BROOKMAN: Tom Eckman.

MR. ECKMAN: Just going back to the characterization of the four categories that you laid out in the -- five categories on Page 5 --

MR. BROOKMAN: The candidate standard levels.

MR. ECKMAN: The candidate standard levels, minimum efficiency level, maximum, blah-blah-blah.

MR. SOMASUNDARAM: No, those are criteria for selecting.

MR. ECKMAN: Yeah. It seems to me that those criteria might be satisfied by different levels, given some of the changes that we may talk about today, like the mark-ups and the share of who buys what.

MR. SOMASUNDARAM: That’s right.

MR. ECKMAN: So are these the illustrative candidate standard levels given that?

MR. SOMASUNDARAM: These are the levels that are --

MR. ECKMAN: Because these --

MR. SOMASUNDARAM: -- present.

MR. ECKMAN: Some may be stable, some may not, given --

MR. SOMASUNDARAM: That's right.

MR. ECKMAN: -- the different economic analysis.

MR. BROOKMAN: Charlie Llenza.

MR. LLENZA: Just want to remind everybody that this is the Advance Notice of Proposed Rulemaking and what we're providing is methodology. So the numbers, while important, are not final numbers and if we have to shift a little bit in terms of candidate standard levels when the final numbers start coming in, based on all the changes we made today, then that will be reflected in the next stage, at the NOPR stage.

MR. ECKMAN: Yeah. I was just trying to verify that the metric category, minimum life-cycle cost, is the overriding. It's the determination of what you pick as opposed to a particular performance level. You're looking for a minimum life-cycle cost candidate standard level.

MR. LLENZA: Right.

MR. ECKMAN: And so it will be some level, whatever that is.

MR. LLENZA: Right.

MR. BROOKMAN: Okay. Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock. But, of course, as we've seen, that could be different from the

minimum life-cycle cost in the trial standard level which comes out with the NOPR, just for everybody. So these numbers are current for now but they could easily change when you see the NOPR.

MR. BROOKMAN: As Sriram said, he's looking ahead. Steve?

MR. COUSINS: I probably should have made this statement in the last segment of discussions that we had. Come 2012, the Coca-Cola Company is hoping and expecting that what we'll have in cold drink equipment will be different from what is currently commercially available because we have a goal and an aspiration that we've publicly stated several times that we want to have completely green equipment in every aspect of operation.

So we are in the process now of phasing out of HFCs and come 2012, we don't expect to have any refrigeration equipment operating based on HFCs as a refrigerant.

Unfortunately, there's nothing commercially available now that allows us to be able to do that, but we're hoping that by 2012, that will be the case. How that factors in, in terms of efficiencies and these candidate standard levels, we just don't know. I'm only saying because if we select Level 5 or a Level 7,

the technologies that we want to use come 2012 may not allow us to be able to hit those kinds of targets.

MR. BROOKMAN: So your detailed comments to the Department on what you think would be appropriate, that'd be helpful.

MR. SOMASUNDARAM: I was going to ask you, Steve. So are you looking at alternate refrigerants, such as carbon dioxide?

MR. COUSINS: At this time, we are actively focused on CO_2 or R-744.

MR. BROOKMAN: Okay. That's helpful. Thank you. So other comments?

MR. SOMASUNDARAM: Sorry. I was just going to say that the two graphs are shown here, 7 and 8. As you can see -- for Class A machines, the lines basically line up in order. The baseline would be above the top-most line there and these are just the candidate standard levels shown. So the baseline is not shown, but for Class B on Page 8, you see that the CSL 2, the green line, actually crosses over several of the other lines and that was primarily because of the way the design options were ordered for small, medium and large machines for the closed front design.

So they just -- they can swap around a little bit. So between -- so what we actually found was that

Level 5 and Level 6, which is very close to Level 5, had a different order of the design options. That's why the little cross-over there, but otherwise these lines are what are shown in the table as slopes and intercepts.

MR. FERNSTROM: So Doug, this is Gary. It's a little off the subject, but I'd like to go back and ask a question of Coke in terms of their efforts to get environmentally friendly refrigerant gases by 2012.

That would be if there is a negative energy efficiency performance consequence associated with those more desirable refrigerant gases, my question would be, are you looking at the air quality impact of the energy saving loss, so to speak, that would result or are you just, you know, looking at your product without regard to the air quality impacts if the energy that supplies it?

MR. BROOKMAN: Steve?

MR. COUSINS: Neither to both questions. It's -- we have no intention of putting out sales and marketing equipment that's going to be detrimental or deleterious to the environment. That's why what we've publicly stated is that we have a goal for energy reduction as well as environmental friendliness with regard to refrigerant gases. So we're looking to hit

targets in both areas.

One thing we recognize right now with CO_2, which is the best candidate that we've identified, is that you don't have efficient -- if you look at the Rankine cycle, if you look at vapor compression, transcritical cycle for CO_2, it is not as efficient when you have larger delta Ts.

So if you have outdoor machines, for example, CO_2 at present is less efficient. That's not to say we won't be able to hit targets. We do expect to hit Tier 2, but, you know, with regard to higher levels of efficiency, it's just too early to say right now.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. I guess that does lead to the question of -- I know it's not shown in the DOE, but just the impact of alternative refrigerants on some of these levels. I mean, if the market is moving that way, again I don't know what the timing is, but that -- you know, if there's no impact, great, it's no problem for your CSLs, but if there's impact up or down, I guess there is a timing issue since this rule comes out in 2009 and takes effect in 2012, as I recall the schedule.

So if there's data out there, I think that might be very helpful.

MR. BROOKMAN: Gary, keep going.

MR. FERNSTROM: So this is Gary again. I've got to commend everybody in this industry's effort to address efficiency and climate change. That's wonderful.

I just encourage you in terms of looking at these two different goals you have, one for efficiency and one for greenhouse gas mitigation, that you consider the emissions of the power production in your thinking.

MR. BROOKMAN: Steve?

MR. COUSINS: There won't be a disregard for that. What, in all likelihood, will happen is if we settle in our R-744 as a direction across the board for cold drink equipment and we can't hit these targets, then we'll just get out of the vending business.

MR. BROOKMAN: Bob?

MR. McGARRAH: Bob McGarrah. I think, and I may be presumptive to assume this, but I think the large companies in any industry are looking at the carbon footprint and I think the carbon footprint really takes into account those issues that we're talking about, the carbon emissions, and it sounds like it's going to become a trade-off.

So, you know, while I'm doing this here, I'm

doing that there, and p.s., my carbon footprint looks extremely good and it becomes a balancing act, and again to my earlier point, if we start to get restrictive on what we can do to just be better, then we're starting to drive in a certain direction. It may not be, you know, the right way to go for the bigger picture.

MR. BROOKMAN: If you get pinched by too high an efficiency target, it might limit your options to meet some of the larger -- the other goals.

MR. McGARRAH: That's what I was trying to say. Thank you.

MR. COUSINS: What we're looking at doing is that we've already trimmed back in large measure where we are with regard to the cold drink business because we can't hit targets.

Now I'm not saying we're going to be irresponsible, but we're going to be business savvy at the same time. For example, open front air curtain coolers. We've gotten out of that because we can't hit our energy targets, you know, with current technology and that's the direction that we'll go in, in the future.

We have environmental goals, but we also want to be, you know, business savvy. So if -- we're not

going to, as a business and we've made this very clear, we're not going to go out and do things that are going to be detrimental to the environment just so that we can grow our profit margin.

MR. BROOKMAN: Lane, did you have a comment? No. Tom, and then back to Gary.

MR. ECKMAN: This is jumping ahead a bit, but --

MR. BROOKMAN: Well, then don't.

MR. ECKMAN: Well, it's on this topic, I think.

MR. BROOKMAN: It is? Okay. Go ahead.

MR. ECKMAN: In the environmental assessment, DOE does calculate what CO2 emissions of each of the standards levels is going to be. So the trade-off ought to be apparent when we get to that point.

MR. BROOKMAN: Okay. Thank you. Thank you. Gary, you didn't look like you were finished.

MR. FERNSTROM: Well, thanks. That was very clear.

MR. BROOKMAN: Okay. Yes, please, Nina.

MS. TARLEY: Nina Tarley. A couple of numbers. The total carbon footprint of a vending machine, 95 percent comes from indirect emission of greenhouse gases and five percent from the direct

emissions. By direct emissions, I mean the HFCs that we have could be in the insulation or in the refrigerant.

PepsiCo already mandated that all of our new vending machines insulation has to be HFC-free, so we're reducing already that part of the footprint. So energy consumption is 95 or larger percent of our footprint. So obviously a lot of our efforts are towards reducing energy consumption because that's part of the larger piece of the pie.

MR. BROOKMAN: Thank you for that clarification. Thank you. Okay. Other comments on this subject?

(No response.)

MR. BROOKMAN: That was a helpful discussion there. Where are we now, Sriram?

MR. SOMASUNDARAM: The eighth and the last question on the ANOPR Notice is -- actually, it's related to the discussion we just had about selection of candidate standard levels as well as what DOE might do in its next steps to characterize the final standard.

It goes back to the correlation that we presented before, the Slope B times the refrigerated volume plus the intercept K and DOE invites comments on

this proposed approach of setting the standard as a maximum daily energy consumption metric and as a function of the refrigerated volume and what numbers, what the coefficient B and K should be for the two equipment classes. That's the question.

MR. BROOKMAN: So you can see how the department intends to characterize energy consumption. Comments on that? Yes, Glenn. Close, please.

MR. SELFRIDGE: One only. There has been some work, serious work done with CSA on this subject, and I believe there's a member here from Navigant who's been in that process and we ought to at least try to align with this proposal before CSA for these numbers, at least for 1 and 2.

MR. BROOKMAN: And just for the record, CSA stands for?

MR. SELFRIDGE: Canadian Standards Association.

MR. BROOKMAN: Thank you. Okay. Thank you. So presumably that will get to Navigant in some form. Yes?

MR. SOMASUNDARAM: Yeah. They've been attending the meetings.

MR. BROOKMAN: Okay. Great. Okay.

MR. SOMASUNDARAM: Okay.

MR. BROOKMAN: Wait. We have -- let's go to Trent first.

MR. ROTH: We just want to state. I think we're good with the standards. We do need to do a little bit more math here because it came up recently, especially on the zoned cooling ones, to really understand the levels in which we're proposing, but overall, I mean, it seems like it's the right standard that's there. We just need to do a little bit more work.

I just want to -- it's hard for us to come here today because really the K factors are recently new and all of our equipment, at least for zoned cooling, in the past has been tested at 90 degrees and knowing the new temperatures here at 75, we haven't done all that testing to understand what that impact is because it really didn't matter to us because we didn't need to test at lower temperatures. We need to drive the higher.

So we've got some work to do a little bit, but we'll respond back in writing.

MR. BROOKMAN: Okay.

MR. ROTH: But it looks good on the glass fronts, Type A.

MR. BROOKMAN: Okay. Thank you. I thought I

saw some -- Steve Rosenstock, did you -- you're all set?

MR. ROSENSTOCK: I'm set now.

MR. BROOKMAN: Okay. Thank you for that comment.

NOPR Analysis

MR. SOMASUNDARAM: Okay. So continuing with what I said before about NOPR Analysis, we will be in the process of doing the NOPR Analysis. We'll select trial standard levels from which the impacts as well -- I mean which includes benefits and burdens are made and the proposed standard level is selected.

Each trial standard level consists of a set of distinct potential minimum efficiency levels covering all equipment classes and which may be different for different equipment classes, and the NOPR Analyses assess the impacts of these trial standard levels on the customer, and again, like I said before, the trial standard levels will be culled out of the set of candidate standard levels that I presented earlier and will look at more details of the impacts and some of the criteria that will be used for trial standard levels are -- we could look at -- DOE could look at combinations of candidate standard levels for each equipment class and propose a single standard and also

the trial standard levels could be based around a consistent theme, such as the efficiency level that has the lowest life-cycle cost or the simple payback period of three years or less.

So DOE invites comments on these criteria that are used for selecting trial standard levels.

If there aren't any other comments at this point, I would ask Aris to mention -- to talk about the Manufacturer Impact Analysis which is an integral step of the NOPR Analysis.

MR. BROOKMAN: Harvey Sachs before we move on.

MR. SACHS: Harvey Sachs here. I'm still not completely clear if there's an explicit mapping from the candidate standard levels to the trial standard levels and Steve threw me a hook a few minutes ago and got me confused about that. Steve Rosenstock.

MR. SOMASUNDARAM: I believe --

MR. BROOKMAN: Will you restate the question, please, Harvey?

MR. SACHS: We have identified in the discussions today a set of candidate standard levels.

MR. BROOKMAN: Right.

MR. SACHS: These evolve or do these evolve to trial standard levels or are trial standard levels

totally different? What's the conceptual relationship, if any? Thank you.

MR. SOMASUNDARAM: My understanding, and having gone through some of these processes in the recent past, --

MR. BROOKMAN: From the ANOPR stage to the NOPR.

MR. SOMASUNDARAM: Yeah.

MR. BROOKMAN: Correct.

MR. SOMASUNDARAM: I presented six possible candidate standard levels, baseline and five additional candidate standard levels, on the earlier slide. These six levels would lead to a set of trial standard levels. They could be two or three or four in number and they could be exactly the same as the candidate standard levels or slightly different based on the revised ANOPR Analyses, as Tom Eckman referred to earlier, and we would then look at impacts. We would look at all these impact assessments that are listed here in terms of the next step of NOPR Analyses as those three or four trial standard levels are impacted.

MR. SACHS: Thank you.

MR. BROOKMAN: Thank you.

MR. SOMASUNDARAM: The baseline could be the same.

MR. BROOKMAN: Okay. Aris?

MR. MARANTAN: Okay. This section is the Manufacturer Impact Analysis. I'm going to briefly describe what this analysis entails.

Basically, the purpose of this analysis is to assess the impacts of standards on beverage vending machine manufacturers. This analysis identifies also subgroups of manufacturers or groups that are out there in the industry that may be affected differently.

It also examines the impact of cumulative regulatory burden and I'll just explain that real briefly. Cumulative regulatory burden is the impacts on a manufacturer that take into account overlapping regulations. So as an example, if there is a manufacturer out there that makes vending machines but also makes other products that are regulated at the federal level, you know, there's a larger cumulative effect of those impacts and so we want to try and capture that, if that does exist.

The method that we used to conduct the Manufacturer Impact Analysis is basically -- we have two different tools available to us. The first one is the Government Regulatory Impact Model or the GRIM. This is a comprehensive spreadsheet that analyzes the cash flow of the industry as a whole, so all the

manufacturers that represent this industry.

We analyze on an industry level the cash flow of several years before the standard, the standard itself and then what happens after the standard in terms of industry cash flow.

Basically that gives you an idea of how much of an impact this proposed standard would have on a manufacturer's ability to exist.

The second item that we use is the Manufacturer Impact Analysis Interviews. We go out as a consultant to the Department of Energy to visit each of the manufacturers who are willing to participate and conduct an interview about their manufacturing process, their engineering technologies that they use, and also get into how they run the business in terms of what decisions are made.

One thing that I'd like to point out is that these interviews are conducted under a non-disclosure agreement, so we set up a non-disclosure agreement. The results are aggregated afterwards and nothing that can reveal proprietary information is revealed in our public documents later on.

So in terms of schedule, this is going to be happening after the comment period. So one thing is that you should be aware of is that we'll be sending

out an invitation to participate in these Manufacturer Impact Analysis Interviews pretty shortly. If you wish to participate, it will happen after the comment period for this ANOPR is completed which is July 16th.

I mentioned the outputs. It's an industry net present value, one of the key outputs of this analysis. We also track impacts to subgroups and we also report on other impacts.

One thing that I would like to mention here is that, you know, this is the Manufacturer Impact Analysis. We go out and interview manufacturers, but as we understand in this industry, this industry is quite unique in that, you know, we have Coke and Pepsi and other purchasers who are very influential in this industry and so we'd like to also extend the invitation to participate in the Manufacturer Impact Analysis to the purchasers as well.

This just shows a diagram of the MIA process. Phase 1 is when we prepare the industry profile. We have a look at the information that's publicly available for manufacturers. We develop an initial Government Regulatory Impact Model. That will inform the questions that we include in the interview guide which we take to the interviews with us.

By the way, we send that out ahead of time so

manufacturers will have an opportunity to review the questions before we actually meet, and then we conduct the interview and we do another round of running the numbers after the interview is conducted to come up with a final MIA NOPR results.

So are there any questions about the MIA process?

(No response.)

MR. MARANTAN: Okay. Thank you.

MR. SOMASUNDARAM: Okay. The last four steps of the ANOPR Analysis are listed here and I'll just briefly explain to you what those entail.

First is the Utility Impact Analysis which is primarily an impact assessment of the reduction in electricity consumption because of the standards rulemaking on the utility industry as a whole. In other words, -- and looking forward.

In other words, this analysis will look at or will use the National Energy Modeling System, the NEMS model that Mike mentioned earlier, and will do a -- perform an assessment of what would -- what might be the changes to the utility sector because of the reduced consumption foreseen by the promulgation of this energy conservation standard.

So in terms of the output, these are changes

to the electricity sales and price by region of the country, changes to the mix of electricity generation again in the future and changes to the new capacity construction in the utility industry.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. I made comments at the earlier stage.

You also -- there's a thing in here about -- under the Purpose about reduced peak load demand. Well, for indoor machines, I'm sure it can be calculated because of the steady state conditions, but in terms of outdoor machines with the current test procedure, with the test procedure the way it is, I mean, I know there's utility data that might be able to help out, but right now under the current test procedure, there is really no way to determine the impact on peak demand due to the machines and due to standards, in my opinion.

Thank you.

MR. BROOKMAN: Thank you. Tom Eckman.

MR. ECKMAN: Will the Utility Impact Analysis compute the national cost, the change in new capacity from each standard level.

MR. SOMASUNDARAM: I don't believe so. I think it only looks at the capacity, the energy

capacity of the future plants.

MR. ECKMAN: It's certainly an impact on utilities.

MR. SOMASUNDARAM: That's right.

MR. ECKMAN: That is, the cost of building that capacity or not building that capacity.

MR. BROOKMAN: Gary.

MR. SOMASUNDARAM: That's right. But NEMS doesn't provide that.

MR. ECKMAN: I would argue that's still an impact, whether NEMS calculates it or not. It seems to me it's a valuable piece of information as to how much money. If you're going to be able to compute the change in price, you must have some estimate of what the cost is because you can't compute the change in price unless you know how much goes into the rates to recover the cost of that new capacity. So somewhere in the model there's some understanding of what that capacity has to cost.

MR. FERNSTROM: So this is Gary. I'd just like to follow up on the previous two comments by saying I agree. If we really want to look at the peak load impacts here, the test procedure doesn't really give us a very good handle on the peak load energy efficiency performance and we're really not addressing

peak load costs adequately either.

MR. SOMASUNDARAM: Yeah. I should mention that this particular equipment, because it's -- the test metric is energy consumption and is essentially considered as a base load in a building, so that particular aspect of the bullet doesn't apply to this product.

The first bullet is --

MR. ECKMAN: Based on which we build the peak. Anything that changes the base changes the peak. It's additive.

MR. BROOKMAN: Tom, you've got to speak into the microphone. Say it again.

MR. ECKMAN: Sorry. Base load and peak load are additive. There's a base out there and if it's not out there, the peak is lowered by the amount that the base isn't there. So this contributes to peak if it's running during peak periods of time at all.

MR. BROOKMAN: Gary?

MR. FERNSTROM: It contributes to peak particularly for equipment that's located out of doors, we all know that, but indirectly, it contributes to peak for equipment that's located indoors, even though the environment the vending machine is operating in may not change, The environment, the building air

conditioning system is operating in, has certainly changed.

So there's, you know, an indirect impact on peak even for equipment located indoors.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: I return again to the paragraph cited earlier -- Harvey Sachs -- on 34,100, and as a rough order, a commercial customer will face almost as much cost for demand as for energy, and I think that's pretty fair for a lot of utilities today, Steven. Okay. But if it's the same or half, it is a significant number in terms of the economics of ownership in terms of the effective energy price.

The reason I return to the cited paragraph is that a prescriptive element that gave credit in these calculations for the ability for a utility to control, for example, 10 minute per hour cut-out which is common for commercial and residential equipment under utility demand management programs, would have value to the country in terms of utility impact and by taking the narrow perspective of either energy units or prescriptive requirements, the Department does not allow itself to harvest benefits that are readily available at very low cost.

MR. BROOKMAN: Thank you. Steve Rosenstock,

follow on.

MR. ROSENSTOCK: Steve Rosenstock, EEI. I don't want to get into a utility rates 101. For commercial customers, demand charges from the data that I've seen and the information I've received, 30 to 40 percent of the bill can be demand charges. However, in the summer time, they're usually higher because there are many utilities that have summer peak demand charges that are higher, much higher than winter peak demand charges, if they have any winter peak demand charges.

So there can be that, but again that would have to be changed for some of your economic analysis as well because of peak demand charges, if you separate them out, then you have a lower kilowatt hour charge when you join the actual economic analysis.

Thank you.

MR. BROOKMAN: Okay. Final comments in this stream?

(No response.)

MR. SOMASUNDARAM: Okay. The next step is the Employment Impact Analysis. The changes to the -- the direct employment impacts are actually developed in the Manufacturer Impact Analysis that Aris described earlier, but in this step, we will be using a tool called ImSET for Impact of Sector Energy Technologies

which will assess the indirect employment impacts because of -- as a consequence of new energy conservation standards, there could be a national impact on changes in employment structure in other sectors of the industry.

So this particular step assesses what those indirect impacts might be on employment, and the final step of the ANOPR Analysis is the environmental assessment that was alluded to earlier by several individuals where DOE is required to report on the estimate of national emission reductions of sulfur dioxide, oxides of nitrogen, carbon dioxide as well as mercury due to the implementation of these new conservation standards.

And this is directly done as a result of reductions in power plant emissions because of the reduced electricity consumption. So it goes back to the Utility Impact Analysis and assesses how the power plant emissions might be affected because of the new standards.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: Harvey Sachs. With respect to Employment Impact Analysis and the Environmental Assessment, and recognizing that this could come back to bite me, this is a relatively small energy consumer

and at some point, it's, I think, a value to this process to give an estimate of whether or not the Employment Impact Analysis of indirect job effects and things like that is actually considered to be significant. It may be calculatable but not measurable, and this will also be true in some of the other areas.

MR. BROOKMAN: Okay. Other comments related to Environmental Assessment?

(No response.)

MR. BROOKMAN: We heard other comments earlier today, of course. Okay.

MR. SOMASUNDARAM: Finally, Regulatory Impact Analysis looks at what some of the -- what some non-regulatory alternatives to this regulation might have. That is, what is the impact of non-regulatory alternatives to this regulatory rulemaking on the market?

Some of the non-regulatory alternatives we've looked at in the past and we would look at for this particular product as well are customer tax credits, manufacturer tax credits and utility rebates as was mentioned earlier or customer rebates towards the purchase of this equipment, and as well as bulk government procurement.

As you all know, there is already a non-regulatory alternative out there for this particular product in terms of the EnergyStar Program and we would also look at how that might be impacted because of setting this new standard for beverage vending machines, and we would report on all this in the Notice of Proposed Rulemaking as well as a Technical Support Document that will accompany the Notice.

MR. BROOKMAN: Additional comments?

(No response.)

MR. BROOKMAN: Okay.

MR. SOMASUNDARAM: Finally, I have been asked to go over this slide by Charlie on behalf of DOE, that we would like to state here that we encourage development of consensus proposals among the stakeholders, either as part of the comment process during this ANOPR comment period or subsequent to that, and as long as any recommendation that comes to DOE must satisfy the seven statutory criteria that are listed in the next slide that are provided by EPCA for DOE to meet and those primarily address the bottom line question of whether the energy conservation standard that is proposed by the consensus recommendation is technologically feasible and economically justified as well as results in significant energy savings.

Therefore, any consensus recommendation that comes as part of comments, public comments, should also include information that DOE can use to assess these seven criteria and determine that the benefits of the standard will exceed its burdens to the greatest extent practicable and the seven criteria are listed on this slide and I think you've seen those before.

They were also in the first part of the slide presentation and they are as follows. The factors are the economic impact on consumers and manufacturers, the lifetime operating cost savings, the total projected energy savings, impact on utility or performance of the equipment, impact of any lessening of competition, and, finally, need for national energy conservation and other factors that the Secretary of Energy might consider relevant for this rulemaking.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI. I may sense that from the last Framework document that such a consensus might be possible based on some of the information I heard from the last -- the Framework Workshop.

I had a question about the impact of the Energy Independence and Security Act of 2007. There's a section in there that said that DOE definitely did

have the legislative authority to accept consensus recommendations, I believe it's after the ANOPR now. But it also said in there that such a joint recommendation, it was in parenthesis from energy efficiency advocates, manufacturers and states were the three parties listed in the EISA, as I recall.

So my question to DOE is, if there's other parties that are a part of such a recommendation but let's say the states just -- we -- any sort of group just couldn't get states to sign on, could DOE still accept that sort of consensus? Again, it was just that paragraph, those parenthesis that kind of confused me a little bit in the EISA 2007.

MR. SACHS: Are you asking if EEI is an environmental advocate?

MR. ROSENSTOCK: No, no. I'm just saying is that right now, there are three groups listed, and I'm just saying if, for whatever reason, one of those groups is not listed, does that mean that DOE can pretty much just say sorry, you didn't meet the EISA 2007, we cannot accept your recommendation?

MR. BROOKMAN: Michael Kido.

MR. KIDO: Michael Kido, Office of General Counsel. If you could just raise that particular issue in your written comments and I'm sure we'll address it

in the future notice.

MR. BROOKMAN: Thanks very much. Thank you. Additional comments on this slide with respect to consensus recommendations?

(No response.)

MR. BROOKMAN: Okay. I think that's --

MR. SOMASUNDARAM: I'll hand it back to Charlie.

Discussion of Other Issues

MR. BROOKMAN: Before we hand it back to Charlie, this is the opportunity we wanted to provide to anybody in the room as we promised earlier for final comments and any -- to raise any issues that you feel you'd like to raise now that haven't been raised already or to emphasize a point or two and make your closing remarks briefly now.

Yes, Glenn first and then Trent.

MR. SELFRIDGE: Yeah. I have --

MR. BROOKMAN: Close to the microphone. Thank you.

MR. SELFRIDGE: It's a clarification.

MR. BROOKMAN: Yeah. Please.

MR. SACHS: I did discuss that and the equation and the constant question, efficiently characterized the existing Class B machines, okay, as

Tier 1. My objection was based on thinking that they might be using that for a cap. It’s not appropriate for a cap formula.

MR. BROOKMAN: Okay. Thanks very much. Trent?

MR. ROTH: This is Trent. We’ll be making -- when we make our written recommendations, we will be making them for ASHRAE rules on 32.1. We just want everybody to be aware of that. We’re going to have to try to anticipate what that ruling might be because that will impact us. We’ll put that in the written comments.

MR. BROOKMAN: And did you say you anticipated that was four to six weeks at least?

MR. ROTH: I don’t know.

MR. SELFRIDGE: If we don’t have -- if ASHRAE does not -- the committee does not have a proposal ready for submittal for comment by like the third week in July, it’s not going to happen this year, so pressure to get it done.

MR. ROTH: Which brings up an issue. We’ll refer back to the 2004 standard. That’s a question. I guess, if ASHRAE doesn’t finalize 32.1, it will go back.

MR. BROOKMAN: Okay. So that was Glenn

followed by Trent. So thanks very much for those comments. Harvey Sachs. Final comments here, folks.

MR. SACHS: I have a question which we'll have to raise, I'm afraid. If the parties involved wish to work on a consensus, are they constrained to do that in the framework of whichever version of 32 is available?

MR. BROOKMAN: Michael Kido? I see Aris is also there. You want to start and then we'll turn it back to the attorney for the final word?

MR. MARANTAN: Aris Marantan. I just want to point out that again the test procedure that DOE's mandated to use currently is 32.1-2004 and even if ASHRAE updates their test procedure, let's say even within the next year, and goes final with that revised 32.1 test procedure, DOE is still obligated to use 32.1-2004 until DOE issues a final rule to update its test procedure.

MR. BROOKMAN: Michael Kido.

MR. KIDO: Nothing to add.

MR. BROOKMAN: Does that mean, though, that did you answer Harvey's question?

MR. SACHS: Yes.

MR. BROOKMAN: Okay. Thank you. Steve.

MR. ROSENSTOCK: Steve Rosenstock, EEI. Just

as a quick follow-on, I know that, you know, central air conditioning and heat pumps is starting and DOE finalized their rule a couple of years ago, but at that workshop, DOE said that they would be interested in amending their test procedure.

Now again, it's an earlier but they said before the ANOPR is -- and again, please, this might be procedure, is DOE allowed to amend their test procedure between an ANOPR and NOPR?

MR. LLENZA: It's called an SNOPR.

MR. ROSENSTOCK: Excuse me. SNOPR. Sorry.

MR. LLENZA: No. I'm saying it would be through an SNOPR of some kind of intermediate document and at the point that we are now in the ruling, that may delay the final rule.

MR. ROSENSTOCK: Okay. I just wanted to -- but whether that was part of a consensus recommendation may be on the test procedure as well.

MR. LLENZA: I don't know because we haven't done one of these yet.

MR. BROOKMAN: Sriram, you want to just comment briefly?

MR. SOMASUNDARAM: This is Sriram. What we said on the central AC is a procedural thing of any amendment to the test procedure has to be published as

a final rule before publishing the NOPR of a standard rulemaking. So that's the process.

MR. BROOKMAN: The sequence.

MR. SOMASUNDARAM: That's the sequence.

MR. BROOKMAN: Yes. Okay.

MR. SOMASUNDARAM: So if you were to apply that to this rulemaking before we publish a NOPR which is due early next year for BVMs, you would have to publish a final rule of a test procedure which is highly unlikely given the timing and like Aris said, ASHRAE is still considering revisions to 32.1 and by the time they go out for public comment, which they expect after the Chicago meeting, which is January 2009, then they publish it. If they don't get any significant comments, it will be at least Summer of '09 before they publish a new test procedure and then DOE will have to take it up subsequent to that.

So my understanding -- my present understanding of this is we will still be held to the existing DOE test procedure which is based on 32.1-2004.

MR. BROOKMAN: Harvey.

MR. SACHS: Harvey Sachs, ACEEE. Without polling, I believe I reflect the community of environmental advocates and to some extent California

utilities at least in first thanking the Department and its contractors for the analyses and, second, stating that we will be quite open to the process of development of consensus agreement with other stakeholders and would look forward to working with all of them.

MR. BROOKMAN: Thank you. Thank you. Gary?

MR. FERNSTROM: Gary representing PG&E. I second that.

MR. BROOKMAN: I see several heads nodding yes around the table for the record. Okay. So then additional and perhaps final comments here at the end of the day, other issues that individuals would like to raise? Steve Rosenstock.

MR. ROSENSTOCK: Just to let you know we are involved with -- on distribution transformers, working on a consensus agreement, and again if you are going down the path at least the way it seemed to work for our members for -- we were consumers of the product, not the manufacturers. This is for liquid-filled distribution transformers, is that we were able to get agreement among widely different members on a two-stage efficiency process which has also been done by DOE and for products such as clothes washers.

So again, if such a negotiations start, there

is that option, too.

MR. BROOKMAN: Thanks very much. Okay. So then we'll turn it back to Charlie.

Next Steps and Closing Remarks

MR. LLENZA: I'm here to do the closing remarks now and I appreciate the attendance here by all the parties for this meeting. You're more than welcome to provide your comments and on this last slide, it's in your package, too, it's just the methodology on how you could provide your comments.

Please remember that the cut-off date is July 16th and also that we will be posting the transcript on the website, so people will have the available information, and the slides will be posted also on the website, the corrected slides, and again thank you for attending the BVM ANOPR Meeting.

MR. BROOKMAN: In your packet, at the back of your packet is an evaluation form and a meeting evaluation form, take you 30 seconds to fill it out. Please do so. The Department reads them carefully.

Thanks to all of you. Safe travels.

(Whereupon, at 3:20 p.m., the meeting was concluded.)

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before:

UNITED STATES DEPARTMENT OF ENERGY

In the Matter of:

PUBLIC MEETING ON ENERGY CONSERVATION STANDARDS FOR REFRIGERATED BOTTLED OR CANNED BEVERAGE VENDING MACHINES

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.

Debbie Derr
Official Reporter

Dated: July 18, 2008