The meeting came to order at 9:00 a.m. in Room 1E-245 of 1000 Independence Avenue, S.W., Washington, D.C. Douglas Brookman, Facilitator, presiding.

PRESENT:
WES ANDERSON US DEPARTMENT OF ENERGY
MICHAEL KIDO US DEPARTMENT OF ENERGY
ANDREW DELASKI APPLIANCE STANDARDS AWARENESS PROJECT
ANITRA GASSET MITSUBISHI ELECTRIC
BILL MCCULLOUGH LENNOX INTERNATIONAL, INC.
BRIAN DOUGHERTY NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
BRICE BOWLEY GENERAL ELECTRIC APPLIANCES
CARL BERGT RHEEM MANUFACTURING CO.
CHARLIE MCCRUDDEN AIR-CONDITIONING CONTRACTORS OF AMERICA
CRAIG MESSMER UNICO INC.
DANIEL J. ARNOLD NORDYNE
DONALD M. BRUNDAGE P.E. SOUTHERN COMPANY
DOUGLAS BROOKMAN FACILITATOR
EDWARD SCHMIDT NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS
ERIC STAS US DEPARTMENT OF ENERGY
**PRESENT (continued):**

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<td>Gregory Rosenquist</td>
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<td>Harvey Sachs</td>
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<td>Laura Van Wie Mcgrory</td>
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<td>Michael Christopher</td>
<td>Navigant Consulting</td>
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PRESENT (continued):

MICHAEL W. WOODFORD  AIR-CONDITIONING, HEATING & REFRIGERATION INSTITUTE

MICHAEL MCCAIBE  US DEPARTMENT OF ENERGY
MIKE RIVEST  NAVIGANT CONSULTING
PATRICK O'CONNOR  KENT & O'CONNOR INCORPORATED
PAUL DOPPEL  MITSUBISHI ELECTRIC
PAUL KYLLO  SOUTHERN CALIFORNIA EDISON

ROBERT WILKINS  DANFOSS, INC.
RONALD LEWIS  US DEPARTMENT OF ENERGY
SRIRAM SOMASUNDERAM  PACIFIC NORTHWEST NATIONAL LABORATORY
STEVE ROSENSTOCK  EDISON ELECTRIC INSTITUTE
TALBOT GEE  HEATING, AIR-

CONDITONING & REFRIGERATION DISTRIBUTORS

INTERNATIONAL

TED POPE  ENERGY SOLUTIONS
TIMOTHY BALLO  EARTHJUSTICE
TOM ROBERTS  CFM DISTRIBUTORS
VINCE MUCCIOLA  NATIONAL COMFORT PRODUCTS

W. VANCE PAYNE  INSTITUTE OF STANDARDS AND TECHNOLOGY
C-O-N-T-E-N-T-S

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Adjourn
MR. BROOKMAN: Good morning, everybody. Welcome.

This is the framework public meeting for residential central air conditioners and heat pumps.

My name is Doug Brookman, and I'll be helping to facilitate this meeting along with all of you.

We are fortunate this morning to have many representatives from the Department of Energy. Thanks to all of you for being here on time so we can get a start on time.

Do you wish to make welcoming remarks here at the outset?

Ron Lewis.

MR. LEWIS: Good morning, everyone, and thank you for being here.

First I want to note that in trying to accommodate some requests to be sure
to get this done before the ASHRAE conference,
when everybody would be tied up with that, we
hurried as best we could, and it didn't give
you much notice by the time we got it out the
doors, and we apologize for that.

We were doing our best trying to
accommodate the requests, and unfortunately it
didn't leave as much advance notice time as we
would like. And sorry for that; I apologize
for that.

But we are glad you are here. And
we're glad we've got such good turnout. And
this is a very important rulemaking, and we
are very interested in your input, and getting
everything that you can give us for input to
make the right decision. And we look forward
to a very active day and good dialogue.

And we again thank you for being
here.

MR. BROOKMAN: Okay. So it's our
tradition to ask each person to introduce him
or herself. And say your name and
organizational affiliation.

And not all of this will be captured in the record, but we have a registration list, so we will know who is here.

But if you'd simply, I'm going to go around the room, say your name and organizational affiliation please.

(Attendees introduce themselves)

INTRODUCTION AND AGENDA REVIEW

MR. BROOKMAN: Thank you.

Okay, thanks again to all of you for being here on time, and for showing up at this meeting.

The Department of Energy counts on this kind of consultation and participation to figure out what to do, how to get this right. And so they really appreciate your being here, as do I.

All of you have a copy of the agenda in your packet. In the packet also is a whole series of very colorful descriptive
slides. We are going to be going through those as the day proceeds here.

There are also some statements, some submissions for the record from individuals for your consideration.

I am going to take a quick run through the agenda here, and then we are going to proceed with the day.

I'm doing the first element there, introduction and agenda review, right now. Following this agenda review, I am going to provide, we are going to provide, an opportunity for any individual that wishes to do so to make brief opening remarks about issues that are of key concern to you.

We hope you will keep them brief.

We don't intend for you to read a lengthy statement into the record. There are other avenues to do that. And I guess four or five individuals, six individuals, have asked the department to speak, so we are going to recognize those individuals first. Then any
others that wish to chime in, we'll ask you to
do so at that point.

Following those opening remarks,
we will have a rulemaking overview, and then
we will go from there to a description of test
procedures. We'll take a break mid-morning,
around about 10:45 or so.

Following the mid-morning break
we'll have market and technology assessment
screening analysis, engineering analysis, and
preliminary manufacturing impact analysis
descriptions. And all that information will
be in the packet that is provided to you,
those colorful slides.

We'll have lunch today around
about noon. And you are on your own for
lunch. When we get to it, we'll describe that
more fully.

Following lunch, energy use
analysis; markups for equipment price
determination and lifecycle costs and payback
period analysis; and other series of detailed
descriptions on these analyses, plural.

And following that, shipments analysis, national impact analysis. We'll take a break mid-afternoon. And then we'll also have more description on the notice of proposed rulemaking analyses collectively.

Round about 3:30 this afternoon, if we get there that fast — there is a lot of content here — if we get there that fast, there is yet another opportunity for any of you to make closing summary kind of remarks, things you wish to emphasize to the department's benefit.

Questions and comments about the agenda?

I'd ask for your consideration, as we go along today, what I think is not much more than common courtesy really. Please speak one at a time. Please say your name for the record. You don't need to say your organizational affiliation every time. You can just say your name, that will be enough.
This gentleman here, Eric, will have a complete transcript of this meeting, court reporter present. So please say your name for the record.

Keep the focus here if you would please. Turn your cell phones on silent, if you would. If you need to have a conversation with someone next to you that is going to last more than about 20 or 30 seconds, please take it out of the room. It's disruptive.

And I'm going to ask you as best you can to be concise, to share the air time. There are a lot of people here, and there are a lot of things people want to say. We want to hear all of it.

I hope that you seize this opportunity today. This is your opportunity to start to influence these proceedings in a way that benefits you. So please do that.

And finally I'm going to be cuing people to speak as best I can by name. I also wish to encourage follow on comments. It is
helpful for the department to hear the point and counterpoint. So that is a little bit challenging for me and for you, but we can make it work.

So please help me to make that work. We are going to be both cuing people this week, and encouraging follow on comments as well.

I think that's all I've got here at the outset. I already said that the general format is as follows. These slides, which you have copies of, we will have a lead presenter, and that lead presenter will be going through the slides one by one, and occasionally there is a pause with specific questions.

So there is an opportunity for question, answer and comment as we go along, and that will be obvious as we look at the slides.

Questions, comments, here at the outset?
OPENING REMARKS FROM INTERESTED PARTIES

MR. BROOKMAN: Okay, do you have the list? So these individuals have asked to speak here at the outset, brief introductory remarks, perhaps summary remarks about issues that matter to you.

And the department has listed them alphabetically. And Karim Amrane is the first person.

MR. AMRANE: Good morning. My name is Karim Amrane, and I am vice president of regulatory and research at The Air-Conditioning, Heating and Refrigeration Institute.

The AHRI is a national trade association of manufacturers of residential and commercial HVAC equipment. HR 350 member companies account for more than 90 percent of the residential and commercial air-conditioning, space heating, water heating and commercial refrigeration equipment manufactured in North America.
AHRI appreciates the opportunity to provide input on the framework document for residential central air-conditioners and heat pump.

Our members have worked very hard over the past 20 years to improve the energy efficiency of residential central air-conditioners and heat pumps. Today central air-conditioners and heat pumps are over 50 percent more efficient than what they were in the early ‘80s.

These achievements are remarkable, and gives credit to an industry that has been pro-active in addressing environmental issues such as ozone depletion and global warming, global climate change.

AHRI looks forward to a full and open rulemaking process. We believe that the advanced notice of proposed rule is an important step that should be included in the rulemaking process as it offers an early opportunity for stakeholders to provide
feedback, comments and data to DOE.

We also look forward to a more thorough and rigorous analysis by DOE. We have seen anomalies during the last rulemaking on residential central air and heat pumps that if not corrected for this rulemaking would result in a flawed standard.

DOE needs to step back and review past analysis to understand where improvements need to be made. For example there is evidence that the incremental cost of $335 between the 10 and 13th SEER, suite air-conditioner, and DOE predicted was severely underestimated.

Further, industry data shows that equipment sales were down by 79 percent in 2007, while part sales increased significantly suggesting that many consumers have opted to repair older equipment rather than purchase new products.

At the same time sales of full air-conditioners have significantly increased
since 2006 when the 13 SEER standard became effective.

These are indications that the last energy conservation standard for residential central air and heat pumps were not economically justified for many consumers.

It also means that the energy saving estimated by the DOE were probably overstated as well.

AHRI intends to submit for the record data that will support its claims.

In moving forward we urge the department to fully consider the impact of climate change legislation being debated on Capitol Hill. The bill before the Senate would set a hydrofluorocarbon HFC cap at 267 million metric tons CO2 equivalent in 2016 when this rule takes effect, some 39 percent below estimated industry demand.

On the other hand, higher energy efficiency, air-conditioners and heat pump, require more refrigerant charge because of
1 large operators and condensers.

2 As an example new 13 SEER products
3 require on average 20 to 30 percent more
4 refrigerant charge than the 10 SEER unit that
5 they have replaced. Therefore it is
6 imperative that DOE carefully study the impact
7 of climate change legislation on the
8 availability and price of HFC refrigerants.
9 There is a real possibility that price will
10 skyrocket, and that not enough refrigerants
11 would be available to meet the new energy
12 conservation standard.
13
14 Finally if adopted by DOE,
15 regional standard for central air-conditioners
16 and heat pump would present unique enforcement
17 challenges. While the current minimum
18 national standard has been effectively
19 enforced since the enactment of NAECA by the
20 industry, through its voluntary certification
21 program, the same will not be possible if
22 regional standards are promulgated.

23 Any regional standard above the
base national standard will require enforcement of product distribution and installation. It is critical for the development of a successful enforcement plan that all interested parties such as manufacturers, distributors, contractors, and code officials be involved in the discussion. AHRI looks forward to working with the department and others in establishing a workable and credible enforcement plan.

Thank you for the opportunity to present our views. We will provide more detailed comments in writing.

MR. BROOKMAN: Thank you. And the department of course appreciates details and specifics just as you describe there. That is helpful today.

Paul, Paul Doppel, Mitsubishi Electric.

MR. DOPPEL: As speaking today, I'm speaking on behalf of Mitsubishi Electric and the ductless products that we offer to the
marketplace.

Three things that are important for us in this rulemaking. One is, we would still like to have consideration for a separate product class for the ductless one to one products. Again, they are significantly different in application from the central air-conditioning systems.

There is another sort of caveat to that in that most of the ductless products today have incorporated an advanced technology in compressors with inverter-driven compressors, which was not on the list of technologies being looked at by DOE, I think it was on page 29 of the framework document.

We believe that the inverters and compressors add a whole new dimension to how comfort is provided. I went into a lot more detail on that in my written comments.

But because of this inverter-driven compressor technology, testing should be considered to be done in a different
fashion. We have not explored this with any
test laboratories yet, but one concept that we
have is maybe a continuous test, changing the
temperatures in the test rooms, and allowing
the system to adjust to the temperature
changes, thereby using its own controls to
change the environment.

Currently, there are a lot of
inconsistencies in the test procedures. In
one test procedure ductless products are
required to do a pre-purge and a post-purge,
which central air conditioners are not
required to do.

All the controls of the ductless
products are disenabled, and the products are
forced to be run like a simple unitary on and
off system, when these products are made to
run over a continuous span. So if there is
not a separate test procedure, then these
inconsistencies need to be corrected.

The multi-splits are a different
class. They have been incorporated in the
1230 standard with the variable refrigerant flow products. And those products, because of the way their capacities and the way they can be applied are more comparable to the central air conditioning systems.

However, there is one very severe penalty that they have to go through with testing, and that is that they are required to turn off one of the indoor units anytime the test is þ or the compressor is run at minimum speed.

If you compare this to if you had a central air-conditioning system that was also variable speed, there is no requirement for that central air-conditioning system to block any part of the coil, to do anything other than run the system at normal.

But you have a multi-split, and again it is required to turn one of the indoor units off. So you are þ it's being tested unfairly compared to another system. And we feel that this inconsistency needs to be
And we can provide information on the differences we have seen on the testing previously, and with this new requirement. So we think that needs to be corrected also.

So just quickly in summary, we still would like to see a separate product class for the one to ones. We'd like to see the testing inconsistencies done away with in that.

We'd like more consideration being given to the converter-driven compressor systems, and testing inconsistencies for the multi-splits, we'd like to see that corrected also.

MR. BROOKMAN: Thank you.

MR. DOPPEL: Thank you.

MR. BROOKMAN: Talbot?

MR. GEE: Sure. Since the written copies were provided, we'll spare everybody a line by line reading of our comments.

I'm vice president of HARDI, which
is the Heating-air-conditioning-refrigeration distributors, international. We represent over 1,000 companies, 450 of which are domestic. Wholesale distributors of heating, ventilation, air-conditioning, refrigeration products, accessory supplies, and controls too; a pretty diverse group.

And frankly this is a pretty unprecedented involvement for us, which is part of the reason why our comments were made a little longer, because we felt somewhat the need to introduce ourselves to anybody who may be seeing those.

But unprecedented due to the fact that HARDI or its members have not been overly involved in these rulemaking proceedings before, but never before have we seen one that maybe so directly could affect our segment of the channel.

We feel it's important to point out that our members recently polled showed an average of 46 percent increase in base unitary
prices of central air-conditioning and heat pump equipment since the last increase in the standard. And while that is attributed to a whole lot of different things, the fact remains that, that is a significant increase in base model prices.

Over that same time there has been an average 12 percent decrease in unitary sales by our members. And as referenced by AHRI, we are seeing an increased business in repairs of existing systems as versus replacement.

Throwing that all in, our biggest concern is that the DOE fully considers what we've already seen in our industry before making any drastic changes going forward, because we are already having enough barriers and obstacles to selling new higher efficiency HVAC systems right now, and we have serious concerns that are effectively getting closer and closer to pricing out the average American consumer, homeowner. The base level prices
have increased so much, and the complexity of the installations have gotten more involved, too, to where there are serious disincentives to replacing systems, and keeping on line long old systems, legacy systems that are obviously much less efficient than anything we've rolled off the assembly line recently.

We have serious concerns about the limitless unknowns and our belief that there is a major enforcement issue with any efforts to regionalize these standards.

We have worked very closely with contractors organizations, and NATE, the technical organizations, to try to help raise the professionalism and the stature of the best installers in this industry. And our concern is, regionalizing in an unenforceable environment will actually encourage all of their competitors who may not be following all the letters of the law. And it would really set up an opportunity for bootlegging and other activities that are frankly market
driven, because consumers will be demanding lower cost, lower installation cost. And to some they would view that they were serving their customers by working maybe outside of what the written law may be at that given point in time.

Secondly, we have some concerns about what the ramifications of regionalization might be on incentive programs, not the least of which would be Energy Star. How would these programs adapt to a regional system where currently right now 14 SEER and 8.2 Energy Star levels, but if those are not if there are higher minimums in certain regions, what does Energy Star do to address that?

Our members have benefitted greatly from the Energy Star label, and do everything we can to try to maintain the integrity of that Energy Star label, and we do have serious concerns that that integrity could be in question if you regionalize it.
And there are actually different Energy Star labels across the country.

I would also say too that the implications very specific to wholesale distributors with unitary central AC products relates back to the physical size of the products. As they get higher in efficiency, they increase in size.

There are basic logistic issues that our distributors have had to deal with, and it's added cost to the channel, not to mention difficulties oftentimes for the installers as well. So we also want to reinforce that for the DOE's consideration, because any look at increasing the standard or anything like that is going to relate back to an increase in the physical size, increase raw materials, increase refrigerant charge, and we do have concerns about long-term availability of our new replacement refrigerants.

So in summary, we are happy to be here. We are anxious to be involved in all of
this. But we felt it was important to kind of introduce ourselves somewhat because we have not done this before, and we look forward to working to highlight the very unique issues to wholesale distributors in the middle of this channel.

Thank you.

MR. BROOKMAN: Thank you.

The next person that requested to speak is Charley McCrudden.

MR. McCRUDDEN: In the interests of brevity I think I am going to just quickly review my comments.

ACCA, we support the ANOPR phase as part of this process. We feel that is critical to finding the best possible solution that is out there.

And secondly I just want to say that we are very concerned with the implementation and enforcement of regional standards. This is one that will come down on our members. We are the last people touching
the box. And as Talbot highlighted, we are concerned with moonlighters with illegal contractors who can bring what is essentially a perfectly legal product outside an imaginary border, and undercutting, and playing on an unlevel playing field against our members.

We are very hopeful that we can find we can come to a good responsible conclusion to this rulemaking on time.

And we are happy to be here, and looking forward to making contributions to this process.

MR. BROOKMAN: Thank you very much.

Patrick O'Connor.

MR. O'CONNOR: Thank you.

MR. BROOKMAN: Thank you.

MR. O'CONNOR: Thank you very much.

I appreciate the opportunity to speak for a couple of minutes.

I represent the American Supply Association. ASA is a national organization serving wholesale distributors and their
suppliers in the plumbing, heating, cooling
and pipe valve and fitting industries. Our
members are the distributors and manufacturers
and manufacturers' reps of many products that
DOE regulates, including central air-
conditioning systems and the heat pumps.

Our two principal concerns, issues
that we'll be commenting on in writing in
response to the framework document and
throughout the rulemaking, is the impact of
the regional standards on the distribution
channel.

The framework document recognizes
that there are three different distribution
channels essentially that move products from
manufacturers to consumers. Our feeling is
that regional standards are going to create
distortions in those distribution channels.

Currently we have what I would
call a national distribution channel, three
national channels. With regional standards,
we create now a series of sub-distribution
channels.

Those channels are going to be subject to price sensitivities. Because regional standards are going to be based on what I would call artificial state boundaries, there is nothing to prevent product from moving across those state boundaries, moving from one region into another region. Particularly there are price sensitivities.

We would hope that DOE would look at those price sensitivities.

There is also the issue of enforcement. Regional standards do not ensure that there will be enforcement of those standards within a region. We would expect, for example, say in the Northeast, that there will be some states in New England that will choose not to enforce a regional standard in those states.

Lack of enforcement again creates distortions in the distribution channel. And we would hope that DOE would look at that in
your economic analysis of regional standards.

We will be trying to assist you with that in
the comments that we submit.

I will say that we will be under
the gun in trying to meet your July deadline
to comment on the framework document.
Therefore I would echo the earlier document
that we would support the ANOPR process, to
provide for a more thorough robust addressing
of some of these key economic issues.

Thank you very much.

MR. BROOKMAN: Thank you very much.

Tom Roberts.

MR. ROBERTS: Tom Roberts with cfm
Distributors. I'm sure some of you are
probably wondering where is there a
distributor here. Why is there a small
distributor from the Midwest here.

But I guess maybe that is the most
interesting part is that this proposed
rulemaking affects people like me as you have
heard from my counterparts possibly as much or
more than anyone else.

I also serve as chair of the HVAC systems council for HARDI right now. So I represent also those people.

And the demographics or the size description of our company just happens to about hit the average distributor in the U.S. who performs this function.

And I too am going to summarize my comments so I don't torture you with a slow reading. But several things that really occur to us are that the role of distribution, whether it's an independent distributor or a company owned distribution function, performs that function of the dissemination of the equipment; the proper matchup of the equipment; and in effect the application of split-system components.

And that role is somewhat complex, and although we pride ourselves on having relatively fast moving product through our channel, we have long tails of slow moving
items that last in the channel, and for us to transmit the change to the contractor base is always expensive, and it's always a cost that seems to get overlooked.

The distribution role, and the change effect in that role. So those costs I think really need to get properly accounted for.

Then we are also concerned, very concerned, about the impact of the potential for climate change legislation on the availability of refrigerants, and what that does to higher efficiency equipment.

We are very concerned about regional standards. I think they make just about as much sense as a state-by-state CAF requirement. Why not have a corporate average fuel requirement for each state?

It just ï it's one of those ideas that sounds like a good idea until you look at a climate change map and realize that the shapes on that map are a whole lot different
than the state borders.

So we would like to find an alternative to that because we don't believe that is workable for all the reasons that Lou stated previously.

And then the price, the pure price. I go out on projects everyday with my contractor customers, and I'm customers of most of the manufacturers here. And I can tell you that consumers are making bad choices today. It's not possibly solely the cause of the previous rulemakings, but because of the, in our case, 45 percent increase in base model costs, there are consumers that are making the decision to continue to use a product that but for that cost increase they would have replaced with a much more efficient system at a lower cost. And they are prohibited for doing that for obvious reasons with their household budget or business budget.

And so they are continuing to use a product that while on paper it may look like
that old 9 SEER or 8 SEER or 10 SEER unit, it isn't that bad. That 16-year-old 8 SEER, or 9 SEER or 10 SEER unit may be operating at 5 SEER or 6 SEER or 7 SEER.

So when you really drill down to the street level and see what's happening, we put people in the position to make bad decisions if we are not careful. And that concerns me a lot.

And unfortunately, the people who can least afford to pay those continuing energy bills are the ones that are making the worst decisions.

We look for ways to sell high efficiency equipment. There is no one in the channel that wants to sell high efficiency equipment more than the distribution side. We make higher gross margins on higher efficiency equipment, so why wouldn't we?

However, we see this tradeoff. I'll give you one specific example. One of the more popular systems right now for the
A clever consumer or contractor is a hybrid system utilizing an electric heat pump and a fossil fuel backup source.

And yet if you take, if you look at the example of making a minimum efficiency requirement or a regional standard that increases the efficiency of say the furnace from an 80 percent to a 90 percent furnace, even though that is not the subject of this rulemaking, that may preclude the customer from putting the hybrid system in if he only has a choice of a higher cost component, a minimum efficiency standard within the system.

So he is back to putting in a system that actually will use more energy because he has priced himself out of the regional standard or national standard has priced him out from putting in a flexible fuel system. And that we're really concerned about, because that system has become very popular and in the absence of a national energy policy having a consumer make their own
energy policy based on flexibility is a really important decision.

So again, we are interested in being a part of the process, and we know that the desire for higher standards is well intended. But we think that there are unintended consequences of these decisions that aren't fully understood at the policymaking level.

Thank you.

MR. BROOKMAN: Thank you.

Those are all the individuals that told the department in advance that they wish to speak.

We want to provide also an opportunity to others to do so.

Yes, why don't you come forward to the microphone. And I'll start, though, with Jim first.

Please say your name, everybody that speaks for the record.

MR. CRAWFORD: This is Jim...
Crawford, Training Company. And I did request in advance.

MR. BROOKMAN: Sorry, we didn't get your name.

Jim, go ahead.

MR. CRAWFORD: The point I'd like to make, several points I'd like to make.

One is, the fact that we are in a period of unparalleled uncertainty and political volatility and we need somehow collectively to work much more closely together than we have in the past. There has been a lot of þ here's an analysis. Throw it over the wall in the past.

And that simply is not going to work, and I won't go into details on that. I think it is fairly obvious.

I will cite now a few facts, and I will give the reporter these notes so he's got the website links to some assertions that I'm making.

The bills in Congress have been
mentioned, and that simply cannot be overstated that the impact of Lieberman-Warner, Boxer, Marky, can have on this industry. And they will come home to roost at exactly the time that this process will be going into force.

If we look at some of the examples of the volatility, aluminum prices are up two to one in the last five years. It makes it very difficult to make precise estimates of the cost of a product.

Copper prices are up four to one in the last five years. There is a national epidemic of stealing condensing units to recover the copper from the coils.

Natural gas prices for the electric utilities are up by 50 percent in the last five years. They are up about two to one in the last six years.

Coal prices, coal being the principal energy source for generation of electricity, coal prices are up three to one
over the last five years.

Additional factors, the decoupling
of utility sales and earnings makes future
utility rates and consumer savings from
reduced energy consumption very uncertain. At
least seven states have considered or are
experimenting with decoupling. Others are
engaged in discussions through NARUC and
elsewhere.

So the volatility that we are
facing requires a very realistic view to the
precision that one can achieve with analyses,
and running wild guesses through a crystal
ball just gives you a crystal ball view of
wild guesses. And in the past that has been
treated as, oh, somehow or other an additional
dimension of precision came out of that
process, and it doesn't.

Thank you.

MR. BROOKMAN: Thank you.

Please.

MR. BRUNDAGE: Don Brundage,
Southern Company. The last time we gathered for this four-year round of fun, one of my major concerns was the effect of higher standards on the dehumidification capability in hot humid climates. Those concerns are even stronger now with some of the proposed changes in building codes. The proposed IECC 2010 standard would dramatically improve the requirements for windows and for building envelope, reducing sensible load, providing a much poorer sensible latent ratio.

And the fact is standard minimum efficiency equipment will not þ with a home built to those sorts of standards þ be able to maintain proper humidity conditions without a supplemental dehumidification system, which if you built a second system in there rather than an integrated piece of equipment that is well designed, it is going to use much more energy than a system specifically designed for it. But your current test standard þ I'm not an expert on this, but I think your manufacturers
would have a difficult time with the current SEER test procedure the way it is written, designing something with good dehumidification capability that could meet the SEER 13 standard.

I would be much more official neutral right now on regional standards. I'd be much more enthusiastic if Congress had in its wisdom allowed other performance standards requirements other than SEER, such as latent capacity in the bill. But coming out of this process needs to be products that are functional and work in hot humid climates, which the current path we've been on in the past just doesn't happen.

This is a complex issue, and I don't know all the answers to it, but it would appear to me that regional standards would provide a good opportunity to address these specific issues.

I know the manufacturers and distributors have spoken a lot about the
problems of that. To some extent it's sort of like locks sort of keep honest people out. If you have a state that enforces building codes, and does their job properly, this will not be a problem, because something that doesn't meet the regional standard will not get a building permit.

States that don't, maybe that's an incentive for them to start enforcing what they ought to do for public health and welfare better.

There are a number of other issues related to this that I will address in comments, but one way or another, whether through original standard or through a single national standard, the humidity issues in hot humid climates need to be addressed better than they are currently.

Thank you.

MR. BROOKMAN: Thank you.

Please.

MR. FERNSTROM: I'm Gary Fernstrom,
consultant to the Pacific Gas & Electric Company. And I'd like to compliment the industry for the 50 percent improvement in efficiency of these products that has been accomplished over the last 20 years.

However, in opening remarks I heard a number of reasons why the current standards or for that matter more rigorous future standards are not merited.

These included lack of cost effectiveness, and a number of other reasons.

So I would just like to agree with the comments of the Southern Company, and say out in California, we have a serious need for a hot dry climate air conditioner, and we believe regional standards are the only way to get there.

We also believe that California has done a good job of enforcing its building standards.

So for the millions of consumers that we serve, that have trouble paying their
electric and gas bills, we believe there should be more emphasis on improved efficiency, and focus on the operational cost of this equipment, rather than simply the first cost.

If we expect to meet California's climate change goals, and make our customers able to afford to use the air conditioning equipment they purchase, we are going to need to find a way to make it more efficient.

MR. BROOKMAN: Thank you.

Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, Edison Electric Institute.

I just wanted to, again, appreciate the department for its openness and all the information that they are trying to provide as soon as they can.

One issue that I know that we'll be discussing that will be of concern to utilities, it came up last time, is the issue of the connection between SEER and EER.
For many utilities SEER gives a great annual type of information in terms of energy usage, electric usage. But then there is the EER issue, which at that test condition is really kind of a better indicator of what is happening on those peak days.

And for many utilities that are planning or deciding about, what does the future look like in terms of their needs for generation if they are vertically integrated, or if they are working with the regional ISOs in terms of, there's regional planning in terms of what are the region's needs in terms of new generation.

The issue of EER, and the connection or disconnection as it were between higher SEERs and EERs is important to many member companies, and I know that Energy Star now has one of the metrics is not only SEER and HSPF, but it's also EER for the Energy Star heat pumps.

And I know that by law that DOE is
required to look at SEERs and HSPFs as we look at higher and higher SEERs, and if there is disconnect, where higher SEER units have flat or even lower EERs, it might be time to consider looking at EER requirements as part of this.

Again, I don't want to add any burdens or costs, but from an industry perspective, we need to kind of keep track of what is going on with EERs as you raise the SEER levels.

Thank you very much.

MR. MANDYCK: Let me see, Lance Delaura.

MR. DELAURA: Just very briefly, I wanted to say the two separate energy utility companies, Southern California Gas Company and STG&E are fully supportive of the regional standards concept, for all of the reasons that Gary Fernstrom mentioned.

We also think it is very important to include the EER as was just mentioned a
minute ago. That is very important to us with peak demand. It's a very large issue in California. We think it's going to be an issue for others across the country.

We think there are ways and we can explore this as we discuss today there are ways to strike a balance between the regional standard. I definitely hear the concerns of the manufacturers, and we work with all of you guys, and we depend on you, and I think to a certain extent you depend on us. And my hope is that we can find a way to make this work in everybody's best interest, but I do think that the regional standards are the right thing to do.

Thank you.

MR. MANDYCK: Thank you.

Harvey Sachs. Please speak close to the microphone.

MR. SACHS: Harvey Sachs, ACEEE, worrying about tipping my empty coffee cup here.
First I'd like to acknowledge the process here and to thank everybody.

Second I'd like to echo the comments of my friend and colleague, Jim Crawford of TRANE, that the assumption that analytical precision tracks with accuracy has proven poorly founded, and it is important for us to work on a process that gets us speaking the same language and driving toward results that will work for everyone. We are certainly open to that.

I'd like to raise well, secondly, we certainly support the concept of regional standards. We have been thinking about this for a number of years.

But I'd like to make two comments in that regard. The first is, the test method is busted. If we try to do this without thinking about the test method, I believe we are going to get ourselves further and further into trouble.

Among other things it plays on
both hot dry and hot humid, is the strong
difference between fuel-determined, fuel-
measured external static pressures and those
assumed in the test.

And among other things, we are
imposing a major challenge on the
manufacturers to produce equipment that both
works well on the test and rates well, and
actually serves customer needs in the field,
where we have typically 2-1/2 to perhaps 4
times as much external flow resistance as is
assumed in the rating method.

There are a lot of other problems
with it. We don't have to go into them now.

And I think I want to stop at that
well, one other little thought which is
just, if we are thinking in terms of the
rating method as the underlying foundation, we
open ourselves to consideration of regional
standards that reduce to regional rating
formulas, regional weighting changes that can
be normalized to a national SEER level,
whether that is 13, 14, 19 or some other number, and thereby preserve the ability of manufacturers and incentive programs to market nationally, while giving us the regional differences in design and performance that will matter in delivering efficiency including necessary health and safety precautions for all regions of the country.

Thank you.

MR. BROOKMAN: Thank you.

Other comments here at the outset?

Andrew Delaski.

MR. DELASKI: Andrew Delaski, Appliance Standards Awareness Project.

Is this one?

MR. BROOKMAN: I think so. Mikes are working better than normal today, for some reason.

MR. DELASKI: You must know me as a regular here.

First of all I want to congratulate DOE on getting the fuel measuring
off the ground. I know it's a busy time for
the office, for the building technology
program, and particularly for the standards
program.

I think Ron told me that there are
now 35 rulemakings underway. What's the
latest count, Ron? Is it up from that? But
it's a busy time.

MR LEWIS: It's like 37 projects;
they are not all rulemakings. There are some
other things.

MR. DELASKI: One of your ways to
consult and make the work go more smoothly is
to consolidate your projects into one
rulemaking.

So I want to congratulate DOE on
doing a good job of sticking with its
schedule. I know meeting the schedule
deadlines are an imperative that has been
impressed upon the agency and upon staff from
very high up in the agency. I think it is
doing a commendable job.
Both with respect to those items that are all the items in the schedule, those that are subject to the consent decree, and those that are subject to more recent congressional deadlines.

I also want to take a couple of minutes to provide my perspective and a little bit of context for this particular rulemaking.

This is an extraordinarily important rulemaking. Among the work the department is currently undertaking in the standards program, this rulemaking ranks among the one or two top priorities in my view, and to the impact on the nation potentially in energy savings, energy consumption.

There are a lot of reasons why the potential impact is big for the nation as well as for the industry. You've heard discussion of climate change legislation, and there are very broad far-reaching potential impacts on this rulemaking.

It stands to reason, I think we
all know, I don't have the data in front of me, but air conditioners are a very large portion of national energy consumption. Residential central air conditioners remain, I don't have the data in front of me as I said, but I think it remains the single largest residential electric consumption, and it's certainly one of the top one, two or three residential energy electricity consuming products.

At the national level it rolls up into a considerable portion of national electrical consumption goes to air conditioners.

It's also, as you have heard from utilities that just spoke, a very important contributor to peak demand. Central air conditioners define summer peak. Anybody who is on the north or on the East Coast last week knows that.

In my local paper they reported the other day that the peak in NSTAR service
territory was 4,100 megawatts on Tuesday, up from our normal peak of 3,300 megawatts. And that was because it was 98 degrees in Boston.

Air conditioners define summer peak. It is incredibly important rulemaking for addressing the peak level of demand in the country which relates to the need to build new power plants, the need to improve our transmission and distribution systems, NERC, the National Electrical Reliability Council, has put out the call. We have an electrical reliability crisis in this country over the next 20 years as we look at how are we going to address the need of increased peak demand to address the need for increased transmission and distribution.

Efficiency is a big part of that solution. Air conditioners are the chief contributor to peak electrical demand. This will make a unique opportunity and play a key role in how are we as a nation going to
address this electrical reliability challenge as NERC has defined it.

We've made tremendous progress in air conditioner efficiency. Gary pointed out a 50 percent improvement over the last 20 years, and that improvement goes, I think lays at the doorstep of the engineers of the air-conditioner manufacturers, who have improved products tremendously over the past 20 years.

Standards have played a key role in driving that forward. It's clear that the manufacturers care a lot about efficiency. They care a lot about climate change; they care a lot about the environment.

Look at their marketing materials. Look at their websites. It's clearly part of unlike many other products, the efficiency is a defining characteristic of air conditioners; it's how you sell the product in significant measure.

Not true for many other products regulated by the department.
So but at the same time manufacturers have to meet the needs of consumers for comfort, for cooling, to broadcast and deliver the comfort needs, as Southern Company pointed out; and they also have to meet the builders' market, or that part of the market that focuses primarily in most instances on give me the thing that costs the least; price remains a very important driver in the marketplace, one that often works at odds with improved efficiency.

The SEER 13 standard established in 2001 was the result of the last rulemaking on this product effective in 2006 made a big contribution. We advocated strongly for that standard, the coalition that I work with. It was the industry came to embrace it. The manufacturing side of the industry came to embrace it first, Goodman supporting the standard initially, the second largest manufacturer by volume. Then the other manufacturers in time, in the fullness of
time, came to support that standard. In the industry now as a whole, we today have the standard in place, and it's making significant contributions to energy savings.

Subsequent to promulgation of SEER 13, the industry has deployed a range of efficient products, and I congratulate you on that; it's a significant improvement.

Sine then the Energy Star program is working. We are seeing products with SEERs as high as 21.

As has been noted, the test method is broken. It's not clear what the limits are in terms of the current SEER test method, and where that can take us.

The final reason I want to emphasize why this rulemaking is particularly important is that it's the first rulemaking in which the DOE will consider using the authority to establish regional standards as established by ESA 2007.

Some argued for regional standards
in the last rulemaking. The Consumer Federation of America for one argued for the notion that we should have had regional standards coming out of the last air conditioner rulemaking.

Many of us argued for regional standards in the furnace docket. Now thanks to in very large parts to the actions of Chairman Boucher, Chairman Dingell, the ranking members on the Republican side, Chairman Bingaman and his counterpart on the Republican side, we now have regional standards authority in the law in DOE. It's incumbent on DOE to act on that authority in this rulemaking to consider regional standards.

Also that language specifically was hammered out between the manufacturing industry and ACEEE. The authority in the law is now clear, and DOE has to act on that authority to consider regional standards.

So in summary, we've made in my
view we've made tremendous progress in air conditioner efficiency thanks in considerable part to standards, but certainly not exclusively to standards.

And we look very much forward to participation in this process as we determine where to go to next.

MR. BROOKMAN: Thank you.

MR. DELASKI: I also have a comment on process, but maybe that is appropriate for later.

MR. BROOKMAN: We will get to that later, yes.

Other comments? I see I'm going to let everybody go through first, then we will return.

Other comments from individuals who wish to emphasize a point or two at the outset?

Okay, Jim, do you want to make another comment? Jim Crawford.

MR. CRAWFORD: Yes, Jim Crawford.
In response to a few comments about regional performance of air conditioners, quite simply some of the assertions made are not consistent with the facts of how air conditioners operate, and I think that collectively we have got to run this thing to ground, because otherwise we are going to be proceeding on false premises.

Air conditioners have a remarkable ability that they automatically without any controls adjust themselves thermodynamically in response to the load, providing higher latent capacity when there is a high latent load, and providing no latent capacity when the indoor relative humidity is very low.

And that has to be recognized as very important. Which is a different point than part of what Don said, because there are very definite changes taking place in building loads, due to for example super insulation.

MR. BROOKMAN: Okay. So then let's proceed then with the rulemaking overview.
The slides, you have them in your possession here, and Wes Anderson is going to lead off.

RULEMAKING OVERVIEW

MR. ANDERSON: Good morning, ladies and gentlemen, my name is Wes Anderson. I'm the project manager for this particular rulemaking. And this is the first of a series of public meetings.

And as I would like to emphasize, we are looking for your comments, as some of you have spoken so far.

What we are going to do today is to give you our broad overview of our analytical approach, methodologies, and on energy conservation standards and residential central air conditioners and heat pumps.

This is a forum for public comment, so it should be a 60-40, 60 you, 40 us, to encourage you guys to provide us with your input as far as data, as some of you have promised, your analysis, and some of your hypotheses.
As Doug mentioned earlier, in the framework document as well as in this presentation you will see blue boxes that will be time for we'll present questions to you. And we want your inputs, get your thoughts, and on the issues for that specific question, so that helps us organize our input data from you.

Feedback: when you want to submit comments, please, there is an email address here. Also you can mail it by snail mail to Ms. Brenda Edwards, who mostly views mail already, and as far as notice, there are two different addresses for courier, if you want to have a courier deliver it, versus snail mail or email.

With email if there is a comment, please have a signature in there, so it's proof of submission.

The docket number needs to be placed for the RIN, or the Regulatory Identification Number, needs to be on there to
keep our records straight.

Very important, the comment period of July 7th is also a holiday weekend, so be cognizant of that, if you are doing information through the post office.

This is another & this is our agenda for the day.

This slide talks about the reasons why we are doing this. I want to emphasize that this is a backlog rule-making. It's under consent decree, so the schedule has to be maintained.

The second bullet addresses the historical statutory statements, and the final paragraph gives you why we are doing it now.

This slide is sort of to give you a correlation of how our analysis relates to the EPCA requirements that were set forth for DOE to look into.

For instance, the impact on utility performance would be done in the engineering analysis, and screening analysis.
Each one of these seven factors will be addressed on the right today. We will give you, like I said, the overview so you will have some understanding of what our approach is.

Today, as I said, this framework document presentation, this is a kickoff. There will be subsequent meetings to this. The reason for it is to give notice to the public, and availability of framework. Also the framework is on the web page previously.

But there is, at the end of the slide, there will be the web page address. And if you have any questions or concerns, some of you have called me about that, and we are going to make those adjustments later on.

The presentation will be placed on the web page as well as the minutes subsequent to this meeting.

The web page is at the bottom of this slide.
These are the dates, the milestones that we are trying to reach, or we will reach. July 7th is the close of the comment period, the advanced notice of proposed rulemaking published in the fall of 2009. The ANOPR will be in the late fall of 2010, for final rule publication on June 2011. And for which the effective date is five years hence.

MR. CRAWFORD: Jim Crawford. Is there any flexibility on that July 7th date? That is very short notice for us to respond to the many, many questions that are posed in the framework document.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: As you know, Jim, we are on a real tight schedule to try to get a lot of things done, and this is only the framework document.

So we established a date, and trying to encourage everybody to get their input in by then. Certainly if we get some
input in after that we are not going to ignore it. It's trying to þ in trying to keep the urgency to this, and encourage people to get things in in a hurry, we have set those dates. And in some cases, to move forward, to get all the analysis done and get all the reviews and approvals and all the rest, those dates become important to have.

We can't do the analysis significantly until we've got the input from people, the analytical or the framework document is theþ just the starting point. So it's not as critical as it is when we get further down the stream. When we get into like the NOPR, if there have been any delays we'd have very little time to adjust to it.

It's really to be able to consider the input, and put it into our analysis. And if we startedþ we don't have the time to do re-analysis a whole lot if we get input that changes directions. So we are trying to encourage everybody to get the input in as
early as possible. And as we get later down into like the NOPR, we are going to have to be pretty strict about it.

But on this phase, and looking at the short time available, we certainly would not ignore something that came in shortly thereafter.

MR. CRAWFORD: Do you know the people will be out of the office during this time, for a week to 10 days, between now and then, for the ASHRAM meeting?

MR. BROOKMAN: We have several additional people who I think wish to comment on this.

Tom and then John and then back to Harvey briefly.

MR. BRUNDAGE: You mean Don?

MR. BROOKMAN: Yes.

MR. BRUNDAGE: Don Brundage, Southern Company.

MR. BROOKMAN: Thank you, Don.

MR. BRUNDAGE: I echo the comments
of Mr. Crawford, because I'm in a lot of the
same meetings.

Also I'd like to make the point
that 10 days notice from the time of the
notice in the Federal Register to having a
meeting is just not acceptable, especially for
those of us who are not in the Washington
area. This is incurring significant
additional costs to my company for making last
minute travel arrangements. I would request
you go back to the usual 30 days notice on
meeting arrangements.

MR. BROOKMAN: Thank you.

John Mandyck.

MR. MANDYCK: I would just like to

John Mandyck from Carrier echo the I
appreciate, Ron, your offer of flexibility on
that date, and just echo the fact that the
department gave us less than 10 days notice
for 55 major questions that affect the future
of this industry. I can tell you our industry
will not be able to respond by July 7th. And
so we do need that flexibility to give you the 
thoughtfulness and the data that is required 
to answer the questions that you asked at the 
thing.

MR. BROOKMAN: Thank you.

Harvey.

MR. SACHS: I also would support a modest
relaxation of that date, given the factors
that have been mentioned above, noting that
you are offering 1.5 months from Federal
Register notice to final remarks due, and then
a subsequent 15 months for your ANOPR
analysis.

That is striking only because in
the work that this industry has been doing on
commission of buildings we increasingly find
that a front-end investment of time in getting
a better understanding of everyone's
objectives has more than paid off in high
quality, better results, and more likelihood
of keeping the time span.
So we think that there is some transferability from lessons, from the complex project management of construction to this process, and again for that analogy we would support some extension.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: I appreciate all those remarks. And I again offer apologies for the short notice. We were working desperately to get this out before the ASHRAY meetings, which were requested by many people, so that you could have that opportunity also to gather together and collectively share your thoughts and concerns in that group format.

So the delays along the way were not intentional, and we did our very best, and it was a close call whether we were going to hold this or not, and we decided at the last minute that we would try to do that, and certainly connected to that, then, extending the comment period would be a rational thing to do.
So we don't have any problem with considering that, and we may publish another date or just the email list that we've got, we may notify people of another date.

But it's a kind of issue where we want to maintain a sense of urgency, and to Harvey's point, we realize doing it right at first, that is our preference as well. The problem we have, especially in the backlog and consent decree area, is it's a date certain we have to deliver by, and any delays on the front end, the cumulative build-up effect, it's a tremendous effort to get these things out the door by the time that is required.

So we are trying to keep the sense of urgency in everybody's face as it is in ours, because we are held under court order to deliver these.

MR. ANDERSON: And also make sure we get your information; that's very important, especially your email address.

MR. BROOKMAN: I want to ask Ron,
do you think you might know whether it would
be possible to extend the deadline by the end
of the day today, or?

MR. LEWIS: Yes.

MR. BROOKMAN: Yes? Okay, that's
good to know.

So then I'll just go right down
the line here: you first, and then to

MR. DOPPEL: Ron, how is it
possible to know for sure that we are on your
email list?

MR. LEWIS: I guess I was just
talking to the general counsel here. We will
have to do a short announcement in the Federal
Register as well. But the more time effective
is to email everybody. So just make sure that
your email address is at the table here. Make
sure you leave your card and your email
address there.

MR. BROOKMAN: So that was Paul
speaking, and now Hung.

MR. PHAM: Hung Pham, Emerson
Climate Technologies. Considering ANOPR is not until fall ‘09 I wonder if we could request a little change in the procedure, is that you know it would be more collaborative if DOE could publish the comments after the July receipt of those.

Traditionally we don't get to review those until the ANOPR or even later.

MR. LEWIS: We will take that as input, and then we'll have to make some decisions back here, sob

MR. BROOKMAN: A lot of these process features are pretty well mapped out.

Kyle.

MR. GILLEY: I support the comments made regarding the July 7th deadline. But I also wanted to bring up one other date that is of great concern to our industry, and that is the effective date of the standard being June of 2016.

June is not at all appropriate as far as implementing an AC heat pump new
standard in the marketplace. We are in the
middle of a summer season, we're in the peak
season for air conditioners and heat pumps.
There needs to be some consideration given to
changing that June date.

MR. LEWIS: What would you
suggest?

MR. GILLEY: Certainly in the past
we have gone with a January date. I can't
speak for our side, but that seems to be more
reasonable from a Lenox perspective, not
something in the middle of peak summer season.

MR. BROOKMAN: Thank you. Andrew,
and then I'm coming to this side of the room
next.

Yes.

MR. DELASKI: So a few comments on
some of these process issues, I want to go
back to.

MR. BROOKMAN: Yes. These are
important, yes.

MR. DELASKI: Regarding the date, I
think it's fine to extend the date a week or two. I think it's critical that the department extend the date formally. I think this sort of open, get-them-in-when-you-can kind of notion, we are open to hearing your comments whenever we can get them, I think that doesn't serve the public and it doesn't serve the department. There needs to be a firm deadline.

MR. BROOKMAN: You want a formal submission in the Federal Register or something like that?

MR. DELASKI: That is my second point. Which is that email lists don't substitute for the Federal Register notice. There are people who would like to be here today who are not here, okay? Not everybody is on your list. I don't know who is on your list. It's not a matter of public record.

The email list[p] I appreciate the notice; I got the notice last Tuesday[p] some of the folks in the room got the notice too[p] but
some folks here I think didn't get the notice.

There are a lot of folks who are not in this
room today who might have been here, if they
had had adequate notice.

So the email list is great; I
appreciate the early heads-up for those of us
who are on the inside, and we are all sitting
on the inside right here that is useful.

But there are many it's a public process, as
a matter of good public process, I think it's
a problem to not use the Federal Register.

That's why it exists.

So I would really strongly
recommend that you publish if you are going
to revise the dates, just revise the firm
date. The department is obligated to look at
those comments, and if you get in beyond that,
then you are kind of taking a risk, I think.

MR. BROOKMAN: Okay, Pat, and then
I'm coming back to this

MR. DELASKI: I have a couple more,
Doug, but you can come back to me if you'd
like.

MR. BROOKMAN: Well, I'm sorry.

No, go ahead, say it now.

MR. DELASKI: On the issue of the notice for this workshop, by my count it was six days notice in the Federal Register. It came out last Friday. That is not much notice. I mean, it's better than we get on the lamp proceeding, where the notice came out after the workshop.

(Laughter)

MR. DELASKI: So you all should count yourself lucky you're not a part of the lamp industry.

But I would mention that my understanding is that in that particular docket, the department got two comments, one from a group of advocates that I work with, and one from the industry. Not exactly broad public participation at that particular juncture, and that was in the ANOPR phase of the rulemaking.
Now the department in the framework document note, outlines as a commitment to an open public process, and we all agree with that. An open public process is critical to this. But I don't think that six days' notice achieves that objective of an open public process designed to, as you ask for in the framework document, to facilitate and encourage participation.

I think that for instance, I spoke with staff from two states, state of California staff, and public officials from the state of California and the state of New York. They would have liked to have been here today, they told me, but they could not be here today, because of travel restrictions. If you are a state employee in California, and you say, "Hey boss, I want to go to Washington with three days' notice, the fares are $2,000," the answer is, you can't. The governor could approve it, but we are not getting that kind of staff. As a civil
servant at the DOE you understand the
restrictions that the state employees face on
travel. It's a financial burden to a utility
company, but for state government officials,
you set up a burden that is insurmountable
with this kind of notice.

And that framework workshop, you
know, is a problem. But I suggest that at the
ANOPR or NOPR stage, I think we are talking
about really ap something that is not
reasonable in terms of the definition of what
would be a reasonable public process, for what
as we've all talked about, a very important
rule-making. Those have got to be fixed.

I have a couple of ideas on how it
could it be fixed. One idea was that you
could have noticed this workshop two months
ago. Don't lose time on the schedule; notice
the workshop two months ago, notice it on
April 12th. I know the framework document
wasn't ready yet, but the framework document
didn't go into the Federal Register. Notice
the workshop, you have to stick to your
schedules, that would be one notion of how you
could do it.

Another suggestion would be the
same as Don's suggestion, which is just give
30 days' minimum notice. I don't think it
would have set us back that far, the
department back that far, if we had 30 days'
notice, and this workshop had occurred 21 days
from now, or 24 days from now, other than
today. And I think you would have had much
better participation from a broader set of
stakeholders.

My next comment, Doug, I'm
shifting topics here, but I have another one
for the 2015 date.

MR. BROOKMAN: Let's stay on this
frame, please.

Yes, Pat.

MR. O'CONNOR: Yes, just one
question.

MR. BROOKMAN: Say your name, Pat,
for the record.

MR. O'CONNOR: Excuse me?

MR. BROOKMAN: Say your name for the record.


Is there an electronic docket set up for the framework document? And if so will the comments that are submitted to the framework document be available electronically through that docket?

MR. ANDERSON: That was one of the earlier questions. We are going to talk about putting access to the comments. Generally we just talk about that later, but there is a web page that has all the information that you would want to find either on the public meetings, the announcements, the framework document or the Federal Register note.

Everything that goes into the Federal Register goes to this web page. It
MR. O'CONNOR: I understand that.

I want to know there will be electronic access to all the comments.

MR. ANDERSON: Not all the comments, no.

MR. O'CONNOR: Why?

MR. ANDERSON: That's just generally we don't address all the comments, even in the final rule. We address the comments.

MR. O'CONNOR: I'm not talking about addressing the comments. I'm talking about access to the actual comments.

MR. BROOKMAN: Yes, the ones that are submitted.

MR. O'CONNOR: The ones that are submitted. Will they be electronically?

MR. BROOKMAN: Let me recognize Ron Lewis.

MR. LEWIS: We have never done that to date. We are working to try to do that.
We have not done that. We are not set up at this point. We are working towards that endpoint, and I can't promise you when that is going to happen, but we are working towards that as part of our activities right now.

So we take your input and your desire, and we note that, we agree with that, and we are working towards that.

MR. BROOKMAN: Hey Ron, some people are new to this proceeding it seems to me. Maybe you could describe briefly what your standard practice has been.

You respond to selectively, to major comments, typically as the process goes on; is that correct?

MR. LEWIS: Yes, the comments are all considered. They are all looked at. Most frequently they are aggregated together where there is a commonality, where there are things that fit together. They are addressed many times, because they are duplicative,
where there are several people with the same comment.

And there is consideration given to those thematically, rather than by the person giving that input, and they are addressed in the narrative in the ANOPR.

There are occasions when there is a single commenter that has an issuer that no one else has commented on, and that's noted.

Normally there is an attribution in there of where comments have come from.

Mike Rivest from Navigant has been here for a long time. I don't know if there is anything else, Mike, that you?

MR. BROOKMAN: Mike Rivest.

MR. RIVEST: I think the question pertains to the availability of comments for other commenters to see what each other have written about. And that's typically been a hard copy docket here at the department.

MR. BROOKMAN: Are all comments that are received by the department, are they
available in hard copy through the
department?

MR. RIVEST: Yes, they are.

MR. BROOKMAN: They are? Okay.

I want to stay on these process
issues. You go ahead, follow on and say your
name please.

MR. POPE: Ted Pope. Ron, if I
could just put a sharper point on it, and I
think following up on what Pat was trying to
say, I understand you are working on probably
a formal process for access to the comments
on the website. But it seems to me it would
take very little effort for Brenda or
somebody on staff to simply circulate
informally the comments electronically
through the email list.

And I realize that is not the full
public process Andrew is talking about, but
as an interim solution until you get a more
formal process, I don't see why that couldn't
be done with virtually no effort at all, and
I do agree with those folks that have made the comment that we need to work together. This is getting more complicated every time we go through this cycle, and if we can see each other's comments in real time I think it will accelerate the discourse and result in a better product sooner.

MR. BROOKMAN: I want to stick with these process issues right now until we have exhausted this comment.

Charley and then to Andrew.

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

Last week's heat wave sort of drives home for my members, July 7th date is going to be very tough. This is our busy time, and my members don't sit in offices. They are pretty much in vans going house to house. So for them to provide me with their comments on these 55 questions is something they are going to have to do at night.

Then on Kyle's point about the
June 2006 effective date, it's going to be very awkward for my members to sell one system one day in the middle of the busy season, and then a much more expensive system the next day. Because the questions that we all solve here impact really my members, because they are the face of the industry. They are the ones handing the bill to the homeowner. If they are forced to say if a consumer says to them, "My cousin just bought a system last week, and only paid for the basic system this much; what happened?"

It's my member who has to say, "Well, there is this long process that started back in 2008, and here is where we are, and this is what happens."

So I think that there is probably a much more appropriate date to make the transition. I think in the middle of the very busiest time of the year for us is much
MR. LEWIS: If you look at the date, the mathematics, it was simply five years from the time that it is required, that we are required to deliver this, and that was the time it said in the prior rule for effective date. So we will certainly reconsider that and take a look at it.

MR. BROOKMAN: Okay. Andrew, and then I will come back to the two of you. I want to see if we can summarize these comments here.

MR. DELASKI: On the issue of making the material on the website, on the department's website, I think it's a great idea.

I think it's important that the department follow the principle that all the public gets equal access to the material the department is producing. I think using the email list for notices is a fine mechanism. If there is some delay for everyone to see it, that is fine. But sending stuff just to
some select group of stakeholders I think is probably a problem from a public process point of view.

It also strikes me that putting PDFs up on a website isn't rocket science. And I know you have internal processes that are so you can't just do things willy-nilly, you have to go figure out who in the department should process that. And I think it's also not the technology, you put up this framework document probably pretty quickly, I guess putting up another 20 to 30 documents as PDFs is fine for the framework.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: I'm not going to go into great detail of all the things going on at DOE. But there are a lot of things that we do with websites and security there are things that are complicating this. I have a contractor looking at, that they're getting comments off that we are working towards that, integrating that with other larger
initiatives along the way... I totally agree
with the desirability and the efficacy of
having those available. We are working
towards that.

MR. BROOKMAN: Robert, and then
Paul.

PARTICIPANT: Well, I tell you, one
convenience of having not been engaged in the
previous ones was previous rule-makings on
this is, we didn't know that this incredibly
tight schedule was unusual. Because we had
real concerns about that, and we want to
point out not only the extension for these
initial comments, but also the effective
date, but specifically when you are talking
about regional standards, where you are not
looking at an existing bit of regulation that
you are tweaking, but really starting from
scratch, for us it's a whole new world as far
as how to pull up the analysis on that.

So that, I don't see how we could
possibly meet that July deadline either.
But that effective date, I want to tie into that that all the members of the channel coordinate their marketing and sales programs well in advance for that peak season, and our members have to forecast their inventoring and stocking requirements, and so that even extends out the requirements for that to happen even earlier.

And we already had matching component system issues with the 13th SEER transition which happened at the end of January, so you can only imagine what it'd be like during peak season. So then you may be able to get the new standard condensing system, but you may not have access to the necessary matching components.

So again, we echo Kyle's and others comments that that effective date needs to be in off-peak times.

MR. BROOKMAN: Okay, thank you. Paul.

MR. DOPPEL: Paul Doppel. Two
thoughts on the implementation date,
effective date. That date in the past has been for the manufacturers to change what they're manufacturing, and not the consumer or the contractor. The contractor doesn't have to make that change from one day to the next; the product is made before that.

So that's going to be the same?

Okay.

The second point, those of us who import products would like to have consideration given also to products manufactured on the date could still be brought into the country after, because with things that go on in the ports, the last time we had to have the product in country on the effective date, andp

MR. LEWIS: To that point.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: I'll have to check with the general counsel. I believe we need to refer to the definition of manufacture. I
think it's a clearly broad definition that includes importation. So we'll have to check that.

MR. DOPPEL: Well, and the last time we did have to have the product in country before January 1st, and again, we lose control of that in being able to bring things into ports, if there is a ports record, things like that, then we could be severely impacted on that. So we'd like consideration given to that.

MR. BROOKMAN: So we are moving towards the kind of content that we are going to cover as a natural course as we proceed here and during the course of this workshop.

And I just want to get these overview comments on process issues and limitations now, and then we will proceed with the content that's stacked and scheduled.

Harvey. I would like to make these as brief as possible so we can move on.
MR. SACHS: I would like to thank our colleague for the suggestion that comments be posted. And Ron, this really winds up being a major bureaucratic issue for the department. I think some of us will urge you to post a link to an external site where we can work to have all our comments posted.

We would much rather have you do that, because we think it's much more appropriate.

Since the hope has offered this, and since the general has asked for greater collaboration.

MR. BROOKMAN: Karim, and then Pat.

MR. AMRANE: I just wanted to respond to Paul on the issue of importation. It's really vague as part of the language. So I think... it's really for importers... at the same time.

MR. BROOKMAN: Pat, you're next.

Thank you.

Final comments then on these
process issues? The department I guess is going to try then to give you an answer by the end of the day on the submission date for the comment related to this meeting, and perhaps other things.

And then Andrew.

MR. DELASKI: I want to comment on the effective date.

MR. BROOKMAN: Yes.

MR. DELASKI: Can you put back a couple of slides please, Wes, to the slide that shows the authority in NOPR where this will be conducted. Can you give a citation?

MR. BROOKMAN: It's slide 12.

MR. DELASKI: We want the citation.

The slide #10.

So this will make me, as I understand it, is being conducted under 42 US Code 69-5(e)(3)(b). So this is the second required rule-making under NACA for central air conditioners.

I just want to read from that,
this (e)(3)(b) section. It's very short, Doug, I promise..

MR. BROOKMAN: Go ahead.

MR. DELASKI: The secretary shall publish a final rule after January 1st, 1994, and no later than January 1st, 2001, to determine whether the standards in effect for central air conditioners and central air-conditioning heat pumps should be amended. Such rule shall provide that any amendment shall apply to products manufactured on or after January 1st, 2006.

Now I just want to highlight this, so this is not confused with the rule that was completed in 2001. The rule that was completed in 2001 is that required under paragraph A. So this is the language in which we are operating.

So my question for the department is, where is January where does June, 2016 come from as your effective date on this slide?
MR. BROOKMAN: Maybe we should give the department a chance to figure out how to respond to that, and then they can do that a little later on in the day, because they don't seem to have an answer at this very moment.

Eric Stas.

MR. STAS: Eric Stas. I think the answer from what you read there, Congress had prescribed a five-year lead time. And obviously you didn't hit the initial target of the statute, that's why we're in the fact of the situation. So this, what we propose here reflects maintaining that five-year lead time.

MR. DELASKI: I see. So it's a question of interpretation. It doesn't say five-year lead time. That's not what the language says. It says 2001. You are just taking that five-year lag, and you are saying "Well, we missed it by a decade. We are going to go ahead and push this one forward
by a decade as well."

MR. STAS: Right, but what it says is, we shall issue an effective date or whatever, it's five years.

MR. DELASKI: The lag, it doesn't say five years, it specifies 2006. But I think the point I'm trying to make here is that you are not, under the plain meaning of the law, you are not bound to any particular date when this rule would go into effect. Since January 1st, 2006, has gone by.

So my point I think you have some flexibility here to go to January start date. I also think that the lag time between the final rule and the effective date is a matter that has to be inserted in this rule-making to meet the criteria of 320.50. That is, that you need to meet the criteria, taking into account how are you going to maximize energy savings, cost effective energy savings, taking into account effective date, and minimize manufacturing impact. We've
heard a lot about manufacturing impacts being high for the June date. So you'd have to meet the NACA criteria, using date as a variable.

And that may mean four-and-a-half year lead time or five-and-a-half year lead time, it may be a three-year lead time. I think the department has to be open to looking at what the appropriate lead time would be to help you meet the NACA criteria.

MR. BROOKMAN: So one obvious question would be, does the consent decree stipulate, mandate, this stuff? Or is it not mandated, stipulated? Ron Lewis.

MR. LEWIS: The issuance is stipulated. The effective date is up to the interpretation by general counsel. So we are not going to answer that today. And most of these issues, by the way, we are taking your input, and there are things that we still don't have the answers for, and we are going to have to get back to you.
MR. DELASKI: I think the good news on this is that it gives you flexibility to address some of the concerns that you are hearing today about minimizing some impacts on the industry.

MR. LEWIS: That's why we have our crack legal staff here, to hear your input.

MR. STAS: Eric Stas, DOE. We want to encourage everyone to give us their comments or detailed comments on this issue, and what your flexibility is. Is it a January 1 date that is best? Is it something in the spring, do you want to move closer to that five-year period or some other period?

MR. BROOKMAN: Thanks to all of you for commenting. This is useful, useful comment for the department to hear.

Now then let's proceed with the slides.

PARTICIPANT: Shall we go to test procedures with Sriram's source on it?

MR. BROOKMAN: Yes, let's do that.
Sriram is up next.

TEST PROCEDURES

MR. SOMASUNDERAM: Good morning.

My name is Sriram Somasundaram.

As with any products standards rulemaking, we have to make sure that the product has a relevant and updated test procedure in the books.

For this particular covered product of central air conditioners and heat pumps there was a test procedure final rule published last October, October 22nd, 2007, and the test procedure itself is listed in 10 CFR 430, subpart B, appendix M.

Since then, EISA 2007, the Energy Independence and Security Act, amended EPCOT to direct DOE to consider updated test procedures for any products whose standards were going to be revised or updated before 2010, or by 2010.

And therefore this product falls under that amendment, and EISA requires DOE
to include standby mode and off-mode energy consumption within the test procedure.

It also directs DOE to include these criteria in the standard or in the efficiency descriptor itself while setting the standards, or independently as a separate measure of the standard rule-making.

DOE understands that the standby mode and off mode energy consumption for the case of the central air conditioners and heat pumps means it is the energy consumed by the equipment when essentially the equipment is off, turned off, or on a standby mode, which means that when the equipment is not providing heating, cooling, or ventilation.

Finally, I wanted to say that DOE expects to propose an amendment to the test procedure as required by the amendment to EPCOT, and as you know, the timeline for test procedures final rule is before the NOPR, before the standards rule-making is published, which as you saw in the timeline
slide, was fall of 2010.

So what I wanted to clarify here on the last bullet was that DOE expects to publish a proposed rule for test procedure later in 2009, and then a final rule by October 2010, so it'll precede the NOPR publication of the standards rule-making.

MR. BROOKMAN: Okay, Karim on this point first, and then to Don.

MR. AMRANE: Karim Amrane, HOI.

We have a very different understanding of the Energy Policy Act with respect to standby power for central air.

In fact there is no mention of central air in the Energy Policy Act. So I guess I'm not sure why DOE is interpreting the legislation as being mandated to look at standby power where they are not listed at all.

And I hope that my friend, Harvey, will support me here, because we worked together at removing central air from the
language in the bill.

MR. BROOKMAN: Thank you.

I see we are looking at the statute here.

Do we have other comments of this ilk while we are doing our research over here? Please, Don, and then I'll come to you, Ted, I believe.

MR. BRUNDAGE: Don Brundage, Southern Company.

Just a quick comment on the test procedure issue. I was ready to jump up and object after reading this text here.

What you just described on what you are going to do for test procedure is very reasonable, but it is not what you have on the slide, what is it? can this bullet be corrected on the version that is posted on the DOE website?

Because you put it really makes no sense to have a test procedure that is not integrated, and part of the NOPR. Because
that is the definition that is the ruler for measuring efficiency, and that needs to be done by the new test procedure in the NOPR. And that's not what this bullet says. It says you are going to propose amendments by October, 2010, not have a finished test procedure that you extend the NOPR for to the fall of 2010.

MR. BROOKMAN: I believe Sriram said a proposed amendment by 2009, and then þ

MR. SOMASUNDARAM: Final rule.

MR. BROOKMAN: þ a final rule by 2010.

(Simultaneous voices)

MR. SOMASUNDARAM: We'll correct it.

MR. BROOKMAN: So we will correct that slide. Thank you for calling that to our attention.

Other comments on this slide, #16?

Yes, Ted, please.

MR. POPE: Ted Pope. I just want
to confirm my understanding that EISA 2007, that DOE is required to assess the full test method, and not just the standby mode component. I think that is what the slide says, but while you are looking at the language I just want to be clear on that.

MR. BROOKMAN: Can you respond to that one?

MR. SOMASUNDARAM: Yes. You mean the EISA requirement? The EISA requirement is specifically to look at this aspect into any of the covered products. And the relevant test procedures. In other words to specifically address the standby mode and off-mode energy consumption as a factor.

MR. BROOKMAN: So I see Michael Kido.

MR. KIDO: Yes, there is actually, if you look at EISA¿ I can give you precise citation¿

MR. BROOKMAN: You can't hear him? Michael, you've got to speak up a little bit.
MR. KIKO: All right, can you hear me now?

MR. BROOKMAN: Yes, that's good.

MR. KIKO: If you go to EISA, there is if you looked at 121 stack 1562, that's the precise site, there is a section covering test procedures, and itp there is a section in there that basically states that standby mode and off-night energy consumption have to be considered as part of the test procedure measurements.

So if you would like, I can show it to you right now.

MR. SOMASUNDARAM: I have the document here. And actually if you go further down there is a section that talks about deadlines, and then lists the product for which DOE has to do thep has to look at the standby power, and they list the dates by which DOE has to issue a final rule on test procedures.

And central air are not listed.
MR. KIDO: That is correct. Those are specific deadlines for those specific products. But there's still the requirement that standby mode and off-mode be considered as part of the test procedures that the department promulgates.

So that is

MR. BROOKMAN: For all covered products.

MR. KIKO: Right, for all covered products. This is an outgrowth of that particular provision.

MR. BROOKMAN: Maybe since there is a statutory interpretation and text involved, the two of you could put your heads together at the break, the coffee break, and anybody who wishes to join you can huddle right over here next to the door, and maybe you can arrive at a shared interpretation at that point.

Hung, and then to Harvey.

MR. PHAM: Hung Pham, Emerson
Climate.

Again, that issue, I thought the test procedures today does have an on-off cyclic test, and I think it does reflect that today, because when we run those tests today it's measured.

I wonder if the department has looked at that?

MR. BROOKMAN: Can you respond to that one, Sriram?

MR. SOMASUNDARAM: I am not sure of the particular intricacies.

MR. BROOKMAN: Your tests show that those features are included?

MR. PHAM: Yes.

MR. BROOKMAN: Karim.

MR. AMRANE: This is Karim again, and I second what Hung is just saying. That's correct, it is. And maybe Brian Dougherty from NIST can here also testify to that as well, because he writes with this procedure.
MR. BROOKMAN: Brian, do you want to just find a microphone, and let us know what you got.

Brian, your name please.

MR. DOUGHERTY: They are correct. Brian Dougherty at NIST. There is a cyclic test procedure to give the C sub D value, and that is 20 percent on, 80 percent off. So that standby period of that 80 percent is accounted for in the C sub D.

MR. BROOKMAN: Thank you.

MR. DOUGHERTY: So it's incorporated into SEER and into HSPS.

MR. BROOKMAN: Explain to us what the confusion is. Where are people confused? I'm serious.

MR. DOUGHERTY: I mean standby power is a big issue. So it just gets globally thrown across. But certain test procedures do cover it, and this is one case that it is.

MR. BROOKMAN: Your name, this
gentleman first, and then we'll go around.
This gentleman here.

MR. McCULLOUGH: Bill McCullough with Lenox.

One of the points of confusion I think is for an air conditioner, many times the standby power is in the furnace, and there is a transformer that provides power for the control side.

This is focused on air conditioning and heat pumps, and so that part gets hidden.

MR. BROOKMAN: Okay, your name, please?

MR. KELLER: Fred Keller, Carrier. And I think part of the confusion is that the current standard includes the standby power when the unit is in the operating mode. So the unit can cycle on and off, the control system is still powered. But it does not include the power for like the heating period of time when you are in the heating period if it's the
heating mode, you have got the cooling system completely turned off. It doesn't include that power in the number.

MR. BROOKMAN: Okay, Andrew.

MR. DELASKI: It strikes me that if the test method includes standby and includes the documentation, that the department would come to the conclusion that no revision is needed for the test method.

So this is simply a data question that could be answered just through analysis. But the department under the law is compelled to answer that question.

MR. BROOKMAN: Harvey, I dropped you out of the queue. I'm sorry, you're next.

We have specific questions we wish to put up, some of which will lead us towards these answers. But Harvey go ahead, and then we'll move on.

MR. SACHS: I want to defer getting
this is Harvey Sachs. I want to defer getting back to Karim on his question to me about last year's conversations. But in the meantime, what strikes me about the test procedure questions, and this goes on what Don and Hung I think both have alluded to is, the test procedure, the rating method, is absolutely key for the analysis. It is the yardstick, and this is intimately tied up with the regional questions. If we are going to do a hot dry, which is shifting the bin hour waiting to some economic value, that is absolutely key for any further analysis, and I just do not understand why the department has not included this in its framework.

MR. BROOKMAN: So let's then, in your comments, if you would, please, make sure and describe fully how the departments should sequence these things.

Gary.

MR. SACHS: Oh, we will address
that in large type, sir. Thank you.

MR. FERNSTROM: So Gary Fernstrom for PG&E. I'd absolutely like to agree with Harvey. Harvey stated earlier the test procedure was broken, and we need to reevaluate it in order to get the information to determine the performance of this equipment in the various climate zones that we would like to see its efficiency improved.

MR. BROOKMAN: Karim.

MR. AMRANE: Karim Amrane, HOI. If you want to re-evaluate the test procedures the way you want to re-evaluate, Harvey, I mean this is going to require it's not going to require one month or two months; it's going to require years. So I don't see how you will be able to finish this rule-making in three years, honestly.

So let's stop the discussion and make sure that we understand what we are talking about here. We are talking about the revamp of the test procedures; we are talking
about years.

So if you want to do that, then we are not going to come up with new efficiency standard by 2016. I mean it's not going to happen.

MR. BROOKMAN: Harvey.

MR. SACHS: I appreciate Karim's comments. I think that we have a lot of variables to consider, including lead time for design, including the rating method, to arrive at 2016.

If the benefits are important enough we might think that late 2016 works. But I think that these issues are important, and to defer this may give us the wrong outcome in terms of stringency versus waiting methods, where we are thinking stringency will satisfy hot dry needs or hot unit issues, when they are just not related as far as I can tell to a higher SEER.

So I think that I speak for a number of people in believing that if we
don't address the rating methods in some way, and understand their impact, we are really beating our drums, and not going to achieve any meaningful gains either for the manufacturers or the energy budget.

MR. BROOKMAN: I want to recognize Ron Lewis. But I'm thinking at this point that perhaps some of you are more empathetic towards the department's positions. Ron.

MR. LEWIS: I just wanted to correct that the focus date is not 2016; it's 2011, because that's in the consent decree. That's when we have to issue this by, so that's what our eye is on, is delivering that, the effective date with the help of GC, we will find out what our flexibility is there. But that has no impact on what we have to accomplish by 2011 in issuing it.

The test procedure on AC has been updated probably more frequently and more recently than almost anything else that we
have got, and there has been input on that.

MR. SACHS: And we were invited not
to participate, if I might interrupt, in the
test procedure update, last round. Harvey
Sachs.

MR. BROOKMAN: So Ron, please.

MR. LEWIS: So what would be most
helpful is, in this dialogue that has been
going on here, is specifics of what people
feel are necessary and not just a general
kind of approach, but if there are things
that you think are missing, or things that
you think we need to do specifically, to give
it to us in specifics and not generalities.

MR. BROOKMAN: Just to confirm,
Ron, you anticipate that the timetable that
Sriram laid out is doable?

MR. LEWIS: The time that we have
that's limited, and I think it's been
reinforced here that in order to move forward
with a standard, you need to know the test
procedure, and that the tradition over the
last 10 years, I guess, maybe longer than
that, I don't know before that, was to have
the test procedure, the final rule, done
before the NOPR, before the standard was
done. And that was the model that we're
working by, and that is in the report to
Congress, I believe.

So that is the model that is up
there, to have that accomplished by then. So
to get that accomplished, to have time to put
out a NOPR on a test procedure, get comments,
be able to respond to that and get a final
rule out in time, we are in a crunch. There
is not a whole lot of time to look at.

So if you have issues, you have
specifics, it's very important that you lay
those out early, because we have such limited
time.

MR. BROOKMAN: Okay, so I have
several people who wish to speak. Lance and
then Paul and then Jim.

MR. DELAURA: This is Lance. I
absolutely agree with what was said in terms of the test procedure being updated. It's really the essence for each of the regions. There really needs to be a specific testing method that matches the regions.

We will file more about this in our written comments, but a couple of thoughts. We mentioned EER earlier, that we think that is essential. The test protocols should accommodate other technologies beyond air-cooled expansion unitary equipment.

We think the protocols should reflect a more realistic static pressure.

And then there is a whole series of issues in terms of rates for the area that this is going to be considered. So are there time-of-use rates in effect for those areas? California is one of the areas that is working with time-of-use rates that creates a different scenario.

There is the time value of energy that is to be considered. Is energy on-peak,
off-peak, those sorts of things. So there is
a lot of detail to get into.

But we will submit, I think the
other California utilities will do the same,
detailed explanations and recommendations
along these lines.

MR. BROOKMAN: Thank you.

Paul.

MR. DOPPEL: Paul Doppel. And
while we are on test procedures I'd just like
to reiterate that there are several issues
where the ductless mini splits and multi-
splits have inconsistencies with central air
conditioning products in the test procedure
that need to be corrected by the 2010.

MR. BROOKMAN: Thank you. And so
the department really requests specifics, and
specifically the fixes, I think.

MR. DOPPEL: Those will be
provided.

MR. BROOKMAN: Jim.

MR. CRAWFORD: Jim Crawford. I
want to agree with what I thought Harvey was saying earlier, and the first thing is, if these changes we are talking about, if these are changes that are going to affect how one measures and establishes the efficiency performance under the law, then they are going to impact every aspect of the analysis process.

And if we went so far as to incorporate some of the thoughts that the last speaker suggests, we probably could be working on this for another 10 or 15 years.

And until such time as we know what changes the department is proposing on the test procedure, it's virtually impossible for us to intelligently comment on those changes.

And that has got to be resolved before, again, before you can go very far with the analysis process. If you take the discussion that has been floating around here for the last 20 or 30 minutes, if all those
factors have to be considered, you need to
have to be at your final rule on
the test procedure probably two to three
years before your final rule on the product
itself.

MR. BROOKMAN: So let's leave it to
to define looking
how they intend to address the test
procedure issue, what their timetable would
be, what the steps they are going to take
are, and I'm going to suggest that we move to
the next slide, and try and answer the
question so we stay fairly much on track here
this morning.

And Sriram, you have a comment
before we move to 17?

MR. SOMASUNDARAM: Yes. Just to
add to what Ron Lewis was saying earlier, DOE
has contracted with NIST to help us get
the updates to the test procedure done in
time.
So we do have a task for NIST to give us all the updates, both from the industry standpoint, and also from the regulatory standpoint, and it needs to be addressed.

MR. BROOKMAN: Ron, and to address this issue, DOE will lay out a schedule or a set of steps that it intends to follow? Or is it just something that NIST is going to do?

MR. LEWIS: We will take the NIST is working in a support role to help us to do what we are responsible for. So it's not NIST's responsibility to do this. And we will have to have a plan to act to. So we are taking all the input, and although this is very helpful, a lot of the input, we are not going to have the answers to everything right away. We are going to take all the input and go back and re-huddle, and take a look at what we have heard today, and take a look at where we are and where we go.
So there are a lot of things that are variable. That is the reason for this public meeting is to get this input, so we can go back and take a look at it, and get comments on what we think our starting point.

This is the starting point, and the starting point only. So we have laid out what our thoughts are right now, we are getting input, and then the natural process is to go back, consider all the comments given, and devise our plan from here forward.

MR. BROOKMAN: Thank you.

Okay, so then, Don, final comment before we move to slide #17.

MR. BRUNDAGE: Yes, Don Brundage, Southern Company.

This is one of those things that it's hard to figure out where to fit in but may simplify the discussion of test procedure changes.

One of the comments in discussing
this issue in the state of Florida, and I have discussed it with Andrew also, is that if you have for health and safety reasons a local jurisdiction wants to establish a minimum sensible ratio for equipment sold in the area, not to try to pre-empt NACA on efficiency, but to set performance standards to make sure that public health and safety is protected, is that allowed under NACA? Could a state not allow certain NACA limited products as part of its building code that did not have, say, adequate dehumidification capability?

If the department would clarify that, some of the need for dramatically changing the test procedure might go away if the states were provided flexibility to not allow equipment that is still suited to meet the cooling needs in the local jurisdiction.

MR. BROOKMAN: Okay, thank you, Don.

Now on to slide #17. As you look
at these items, we will start with 1.1, and it's a rather, a couple of very specific questions.

Sriram, do you want to read them so we have them in the record?

MR. SOMASUNDARAM: Right. So these are the first three questions that we are requesting feedback on.

And they also appear in the framework document under Section 1.

So the item 1.1 is specifically requesting comment and feedback on how DOE might address the standby power modes and the magnitudes of the standby power consumption when the unit is turned off or on standby mode.

Item 1.2

MR. BROOKMAN: Let's do one at a time.

MR. SOMASUNDARAM: Sorry.

MR. BROOKMAN: Comments on that one first. I want to establish some momentum
here. Comments on power modes and magnitudes of standby power consumption.

    MR. ROBERTS: This is Tom Roberts. That is adequately addressed by the current standard. Tom Roberts.

    MR. BROOKMAN: Other comments with respect to this? Karim.

    MR. AMRANE: Karim Amrane. I wish we had done the homework here. I mean those are addressed in the test procedure, and very strange that DOE is asking questions on its own test procedures that apparently DOE doesn't know it covers already.

    MR. BROOKMAN: Okay. Craig, you want to add on?

    MR. MESSMER: Craig Messmer. Are you looking for like specific wattage when the fans are turned off? Transformers?

    MR. SOMASUNDARAM: In terms of the control systems, what may be turned on or what may remain on when the compressor is not providing the compressor or the fan is not
providing any airflow for cooling, heating or ventilation.

MR. BROOKMAN: So Craig, can you address that?

MR. MESSMER: Well, we make fan coil units, and I know that some of our circuit boards are under 10 - 12 watts. So you want to use that number, that's what we would have.

MR. BROOKMAN: Yes, Jim.

MR. CRAWFORD: Doug, I think that if there is a question here of merit, it needs to be fleshed out and submitted to the industry so that considered responses can be made rather than knee-jerk responses sitting around the table.

MR. BROOKMAN: You think this is too specific, and the answer requires consultation inside the industry?

MR. CRAWFORD: I think it's not specific enough.

MR. BROOKMAN: I see.
MR. CRAWFORD: I don't think the question is specific enough. And I don't think that the answers that we would give today would be a legitimate basis for any decisions.

MR. BROOKMAN: What about the second question? DOE invites comments on whether it would be technically feasible to incorporate standby power consumption into the SCER metric, or whether it instead should be considered as a stand-alone measure for this rule-making.

MR. CRAWFORD: Until I see the question for 1.1, it's kind of difficult to measure 1.2, to answer 1.2. But any presumed power consumption that is added to the test procedure without adding cooling capacity to go along with it is automatically going to suppress the performance rating number.

That creates all kinds of rather difficult problems throughout the industry where today it's a 13 and tomorrow it's a
12.5. That's why I'm concerned that we are changing the yardstick, and the public has gotten pretty well accustomed to a yardstick. It doesn't say that maybe it shouldn't be some other measure.

MR. BROOKMAN: Let's hear from a few others. Gary and then Andrew.

MR. FERNSTROM: Okay, from PG&E's point of view, when we assess the energy efficiency performance of a product, we need to know what power that product is demanding each of 8,760 hours a year.

So it would be important for us to know what the standby power is, irrespective of what cooling that product may or may not be delivering.

MR. BROOKMAN: Andrew.

MR. DELASKI: Gary addressed the part I wanted to say. But also I think with respect to a change in the questions, if we suddenly begin taking into account modes that are not currently reflected in the energy, in
the current test method, my understanding of
the law is that DOE is obligated to true-up
test methods, or true-up the standard in a
way that things that comply today, a machine
that complies with standards today complies
tomorrow, so we are not changing the standard
by changing the test method.

I think that I just wanted to
confirm that.

MR. BROOKMAN: Lance.

MR. DELAURA: Just a quick comment.

Standby power loss is in quick comment.

Standby power loss is in general, regardless
of the type of equipment. It's a large focus
for California and the California Energy
Commission which unfortunately because of the
timing was not able to be here today so I
guess I'll speak for them, that we don't want
to ignore that issue. It's very large, and
it impacts demand. It impacts the peak load.

MR. BROOKMAN: So will they or you
or somebody submit those as comments to the
MR. DELAURA: Yes, we will make sure that the California Energy Commission is aware of what is discussed here today, and they will make their own independent comments.

And when I say I'm speaking for them, I am speaking as an observer of their process.

MR. BROOKMAN: Thanks for clarifying that as well.

I'm going to go then to Kyle, and then to Brice. Please.

MR. McCULLOUGH: Bill McCullough.

One of the things, there is more to the question that we can't answer here but we would need to consider in this for an air conditioner when in the off cycle if there is a call for heating in a gas furnace technically it would not have any standby usage. And what percent of the time would that period be?
MR. BROOKMAN: Okay.

MR. McCULLOUGH: And so that would need to be considered in exactly do you account for the transformer off power, you could get the VA of that differently from a heat pump to an air conditioner.


MR. BOWLEY: Brice Bowley, General Electric. I think part of the question is, is really what is standby power. I think that is why the cycle portion of the test method has been included with evaluating these units, it's really the unit isn't performing its intended function whenever it's turned on, which is why you need to address these different modes and energy usage, at the hope, during the entire operation of the unit.

I think the question is, you could design a unit such that the fan runs continuously, so is there really a standby mode in that unit? Again, I think it's much
better to address it with the test method as it is with the cyclic portion.

MR. BROOKMAN: Harvey Sachs? Jim, did I drop you out? I think I dropped Jim out. Go ahead, Jim, and then Harvey.

MR. CRAWFORD: The question sort of touched on here is what is standby. And one of the things that is not recognized, certainly on Capitol Hill, and maybe in this building, is that there is a reason for the power consumption for transformers, for thermostats and controls.

And a principal reason is personal safety and fire safety. The most egregious example of standby power is doorbells. That little transformer sits there and sucks up watts, 8,760 hours a year, and gets pushed three times a year for about two seconds.

Why do you do that? You do that to avoid line voltage switching. You do that in an HVAC system to avoid line voltage thermostats, which are notoriously
That power supply is providing a useful function every hour of every day of the year. It's not by design, it doesn't know it's in standby, because it's working.

MR. BROOKMAN: Gary, follow on, and then I'm coming to Harvey.

MR. FERNSTROM: Okay, just a real quick comment. There is no dispute there. These transformers are impedance protected, and that's a safety issue. That's why they have the standby mode they do.

However, that usefulness that utility could be provided more efficiently with a different type of product other than a magnetic transformer.

So what we are looking at in California is how the efficiency of that service can be improved. And I think there is an enormous opportunity to improve doorbell transformer efficiency.

(Laughter)
MR. BROOKMAN: Harvey Sachs.

MR. SACHS: I only want to ask two questions, one is that given that the service of continuous ventilation is being provided, and used in a reasonable fraction of houses, we are again back to the so-called furnace fan issue of where the efficiency of that service provision is to be evaluated.

And I state that as a question.

The other one that is much more important to me today is what I call item 1.4, that we have not asked for given any request for feedback on what, if anything, has to be done to the rating method to enable the department to adequately consider regional standards?

I mean we've got this 800-pound gorilla sitting over in the corner of the room, and we are worrying about the mice.

MR. BROOKMAN: So Harvey and others, if you could advise the department of what that information would be, I'm certain
they would appreciate that.

MR. SACHS: I assure you, we will require no second invitation.

MR. BROOKMAN: Thank you.

I want to provide an opportunity to comment on item 1.3. I also want to provide an opportunity shortly for us to take a break. So take a peek at it. DOE also invites comments on the necessary changes to the existing DOE test procedure for central air conditioners and heat pumps to account for standby power consumption and its measurement.

I think we have touched on this considerably already, but final comments before we move on?

Okay, we have made good progress. We have had really very straightforward and effective dialogue already today.

It's 10 minutes after 11:00. I'm going to suggest we take a break. We will resume at 11:25.
While you are walking in this building, make sure to wear your building pass, and also we are likely now since we are taking a late coffee break to work at least until 12:30 before we break for lunch. So if that means you need a banana for your blood sugar, go get it.

(Whereupon at 11:10 a.m. the proceeding in the above-entitled matter went off the record toe return on the record at 11:28 a.m.)

MR. BROOKMAN: Okay, let's start.

So we are proceeding as the agenda lays out, and next we are going to hear market and technology assessments, screening analysis, engineering analysis, and preliminary manufacturing impact analysis from Mike Christopher.

Hey, folks, let's settle down please. Mike Christopher is our next presenter.
MARKET AND TECHNOLOGY ASSESSMENT, SCREENING ANALYSIS, ENGINEERING ANALYSIS, AND PRELIMINARY MANUFACTURER IMPACT ANALYSIS

MR. CHRISTOPHER: Thank you, Doug.

I'm Mike Christopher with Navigant Consulting. And the next few chunks of the agenda we are devoting to the analyses that will be conducted for ANOPR, the Advanced Notice of Proposed Rulemaking.

Those analyses will begin following the conclusion of the comment period for the framework whenever that may be, and will finish in the fall of next year.

So the first four analyses in this, that are conducted for the ANOPR, are market technology, screening, engineering and a preliminary manufacturing impact analysis.

The first of these, the market and technology, is a collection of data by DOE to characterize the industry and the market for residential central air conditioners and heat pumps, and also is a chance to identify those
So what DOE does is looks at data such as shipments, trends in the market and forecasts, looks at regulatory and nonregulatory initiatives that may also have impacts on efficiency; and as I mentioned, identifies the technologies that can be used to improve efficiency.

This is just a general request for feedback, item 3.1. DOE is looking for any information that stakeholders can provide that would assist in developing this characterization and this list of technologies.

MR. BROOKMAN: Yes, please, Kyle.

MR. GILLEY: Kyle Gilley. Just a clarifying question. When we talk about market trends, does that also include things like repair versus replacement phenomenon that we've been seeing in the marketplace?

MR. CHRISTOPHER: That is typically
looked at I believe in the LCC analysis.
Shipments analysis and LCC; so that would be
a different analysis.

MR. GILLEY: So that goes into the
shipment analysis?

MR. CHRISTOPHER: Yes.

MR. BROOKMAN: Which comes later.

Which comes later.

MR. CHRISTOPHER: We will talk
about that later in the day.

MR. BROOKMAN: Gary.

MR. FERNSTROM: So there is a broad
range of technologies, some of which have
been identified to us from the California
Cooling Technology Center, which we work
closely with. They are going to be
submitting some comments regarding that. But
one I'd like to mention right now is, we
should definitely be looking at water cooled
condensers.

MR. BROOKMAN: Thank you.

So other comments on information
sources?

Karim, thank you.

MR. AMRANE: Karim Amrane, AHRI. I believe that water cooled condensers are outside of the scope of this rulemaking. I think we are talking about air conditioned cooling only.

MR. BROOKMAN: Okay. What about the other products, Karim?

MR. AMRANE: Water cooled condensers are covered under a different part of the regulation.

MR. BROOKMAN: Just to follow on, Gary, but I want to return to Karim in a moment.

Go ahead.

MR. FERNSTROM: Well, my responding question would be why this type of equipment is available in California in residential models which are within the scope of this rulemaking.

MR. BROOKMAN: That was Gary.
Go ahead.

MR. CHRISTOPHER: I don't want to quote the CFR without it in front of me, but if anyone has the definition on hand of what a central air conditioner is, I believe it's air cooled.

MR. BROOKMAN: Yes, Ted.

MR. POPE: Would that also apply to a system that uses evaporatively cooled air to cool the coil?

MR. CHRISTOPHER: I don't have an answer to that.

MR. FERNSTROM: Gary from PG&E. If we exclude water cooled condensers simply because they are deemed to be outside of the scope, we are foreclosing a look at a significant energy efficiency improvement opportunity here.

It would seem to me that would be a mistake.

MR. BROOKMAN: Thank you.

Jim Crawford.
MR. CRAWFORD: I guess as a manufacturer of water cooled equipment, I want to thank the gentleman for his promotion of water cooled equipment. But this is an air cooled air conditioner heat pump standard that we are dealing with. And if we want to open it up and try to put all kinds of equipment under one rating system, we will be here when the youngest of you retires.

MR. BROOKMAN: Thank you. Yes, let me go with Don and then Harvey.

MR. BRUNDAGE: A quick comment. It's not all a disadvantage if this is not within the scope. Because if it's not within the scope of the NACo rulemaking, then that leaves it free for your local jurisdiction to set its own standards, which in the case of California tends to be a preferable route anyway.

MR. BROOKMAN: Let me let Karim follow on there.

MR. AMRANE: Karim Amrane from

Neal R. Gross and Co., Inc.
202-234-4433
AHRI. No, I mean water cooled, a culvert for example, and actually I think they are covered. It's not like they are not.

(Simultaneous voices)

MR. BROOKMAN: Okay, Harvey.

MR. SACHS: Harvey Sachs. Just for the record I get the sense we are compounding two classes of equipment, water cooled equipment versus water sprayed evaporative condensive units. And I think that distinction is important, and I believe that Gary Fernstrom was referring to the former, and Ted Pope to an indirect form of an evaporative cooled condenser, not to water to refrigerant heat exchange.

MR. BROOKMAN: Okay, thank you for that clarification.

I am going to suggest we move on to slide #22 then, current product classes and standards.

MR. CHRISTOPHER: The current product classes which I'm sure most of you
are familiar with, and the current standard levels are here. They include split and single package, air conditioners and heat pumps; small duct high velocity systems currently have their own product class; as well as space constrained air conditioners and heat pumps; and currently through the wall systems, both split and package, have their own product class. However, the definition of through the wall products is such that this product class ceases to exist on January 23rd, 2010. And we will talk a little bit more in a minute as to the implications of that.

Another note to make here is that although small duct high velocity systems have a standard that is codified in the CFR of 13 SEER 7.7 HSPF, there currently is exceptional relief in place for the three manufacturers that have applied for that in the form of standards at 11 SEER and 6.8 HSPF.
DOE intends to look at these product classes, in this rulemaking, maintaining split and single package air conditioners, heat pumps, as well as small duct high velocity systems.

And continuing with space constrained air conditioners and heat pumps. And there are two items for feedback here, the first of which DOE is looking for feedback on these product classes. And item 3.3 would like to know, are there other classes that DOE should look at, and should all of these classes be considered.

MR. BROOKMAN: Don first.

MR. BRUNDAGE: Don Brundage, Southern Company. There are products under development which are not really commercial now, but likely would be by the time of the final rule to independently control humidity and space cooling, either through residential systems for things like hot gas reheat from GHP AC system.
My question is, would that fall under one of the existing product classes as defined, and if not, should it potentially have a separate class? My concern is that, and this is all the chicken or the egg issue because of test procedure, if you have something that directly goes after humidity control and doesn't produce more sensible cooling, it's going to show it's going to do very poorly under the current test procedure, and probably would have trouble making SEER 13.

If it does fall under the definition with existing product classes, I would suggest that it might be useful to carve out a separate class for a premium separate controller, humidity and dehumidification, and space cooling to prevent restrictions on this product entering the market.

The manufacturers could probably answer better on this than I could, but the
numbers I have seen, these things use substantially more energy for the same amount of sensible cooling. But they dehumidify quite well.

MR. CRAWFORD: But SEER and EER are not predicated just on sensible cooling. It's total cooling.

MR. BROOKMAN: That was Jim Crawford.

MR. CRAWFORD: And latent cooling is often actually more efficient than sensible cooling.

MR. CRAWFORD: I guess my question is, is it a different enough product in characteristics and performance that it deserves a separate product class.

MR. BROOKMAN: Yes, please, your name for the record.

MR. ARNOLD: Dan Arnold of Nordyne. I'd like DOE's legal counsel to comment on whether my interpretation of NACA is incorrect. Because I believe that NACA
prohibits consideration of technologies that are currently not available in the market. So in other words the standard cannot be set for something that is in development or is conceivable but not commercially currently available.

MR. BROOKMAN: Eric Stas.

MR. STAS: Eric Stas, DOE. DOE has traditionally looked at things which are a working prototype for example that could be brought into the commercial realm, things that are strictly R&D we haven't considered.

MR. BROOKMAN: Don Brundage.

MR. BRUNDAGE: Don Brundage, I want to clarify p I'm not suggesting setting a standard for it. I'm suggesting defining the product classes to not unduly prohibit these products when they come into the market. I think it'd be premature to set a standard, but I don't want to have the way the product classes are defined, it'd be a barrier when they are introduced. But by
forcing them into one of the existing classes

MR. BROOKMAN: So is there a simple answer to this question? Yes, Karim.

MR. AMRANE: Karim Amrane, I think the answer is the waiver process. I mean they can always file a waiver if they cannot meet the standards.

MR. BROOKMAN: Okay, so then the questions that are on the table here now are these product classes, what you think of them, and should there be other product classes considered.

Paul and then to Harvey.

MR. DOPPEL: For the ductless products, again we would recommend that consideration be given to the ductless mini-splits as a separate product class, because they are installed differently; they cover a different market segment than central air conditioning; and their general size usage, their average size usage in the industry is
somewhere around between 12 - 15,000 bTUs, as compared to the larger central air conditioning systems, and also the variable refrigerant flow products have sort of included the ductless multi-splits, and we feel that the BRF products need to have a separate product class also.

MR. BROOKMAN: Thank you.

Harvey.

MR. SACHS: The comment would just be on Mr. Brundage's request for alternative ways to deal with the enhanced dehumidification products. And one of those would be a rating method change which might involve moving from 8067, interim conditions, to some other set, and there are a lot of ways, and this is not the place nor time to get into the details, but to suggest that an alternative rating route might be a possibility for that class of products.

MR. BROOKMAN: Is that what you would suggest for the department to consider?
MR. SACHS: Darn straight I want to consider it. I'm not sure it's the answer.

MR. BROOKMAN: Okay, please, your name for the record.

MR. MUCCIOLA: Vince Mucciola.

MR. BROOKMAN: If you would please use the microphone. This is fully recorded here.

MR. MUCCIOLA: Vince Mucciola, National Comfort Products.

We are the only member of AHRI that is a through-the-wall condensing unit and heat pump, and I would like to see us be able to continue that through-the-wall classification in these planning states.

MR. BROOKMAN: Thank you.

MR. CHRISTOPHER: Just a quick comment. We will look at that in a couple of slides, and any comments you have then we'd appreciate.

MR. BROOKMAN: Okay, Mike then Jim.

MR. CRAWFORD: The point has been
made twice that VRF is something new and unique. Variable refrigerant load implemented in various ways has been in the market for well over 30 years, and the current test procedures accommodate that and recognize it and have for over 20 years.

MR. BROOKMAN: Okay, so it's Bill.

MR. McCULLOUGH: Bill McCullough with Lenox. I guess I would second Jim's comment on the VR, variable refrigerant volume units, and for many splits, while they are installed differently, the consumer uses them still for the same purpose, and I think they should remain in the same product class, much as air conditioning in single package units are in the same product class.

MR. BROOKMAN: Okay, thank you.

Did you have a comment? Is it Brice? No? Okay. So then additional comments on, are these the product classes that the department should use? Should there be others?
I guess we've heard by Harvey.

MR. SACHS: Bill, Bill McCullough, the comment you made is most interesting in terms of defining product classes by consumers' view of service. And I guess it's intriguing, because it would argue for example for integrating the ground-source heat pump rating method with the one at issue today.

It's seen as providing the same service by the consumer.

MR. BROOKMAN: You wish to expand to that class as well, Harvey?

MR. SACHS: I don't think that that is going to enable us to get this proceeding done within two lifetimes, but I'm just trying to suggest that the service argument while being important is one that the industry itself has resisted in conjunction with other categories of equipment.

MR. BROOKMAN: Yes, Hung.

MR. PHAM: Hung Pham, Emerson.
Climate. I just listening to the comments here have a concern relative to whether DOE needs to relook at what the intent is for the efficiency and test procedure standard.

Looking back 20 years ago it came about as a means to compare different equipment under the same conditions, as much as possible.

The intention is for the consumer to be able to buy equipment A and equipment B and know that a 14 SEER is X percent better than a 13 SEER.

I think we are now raising questions that are not along the line of the uniform test standard. We are talking about DOE coming up with an application standard, something that can reflect two refrigerators, one in a home here and I open the door 10 times, and the other guy only opens it three times, and I want to reflect that energy savings.

I think we need to realize that
there is a limit on how far DOE can go with
that, time of use, and heat loading, and all
of those things. I think if we continue to
want to handle those, it may have to be a
very different approach, meaning DOE may have
to modularize this somehow so there is a
platform, and then somebody else can take it
and plug in different numbers, whatever. But
then it will lose the meaning of the national
standard.

MR. BROOKMAN: Lance first.

MR. DELAURA: This is my soapbox
statement. I think that this is our chance
to get it right, as a group, and this is
going to be difficult no matter what we do.
And I think to make the right choices, and to
look at all the embedded elements that are
going to be affected by this, not only now
but for the foreseeable future, is extremely
important. So if there is extra pain, now is
the time to do it.

MR. BROOKMAN: Paul, Gary, this
gentleman, and then Karim as briefly as possible.

MR. DOPPEL: Okay, just to þ Paul Doppel þ just to clarify what we are referring to as variable refrigerant flow, or VRF systems, the definition from the draft standard at ARI 1230, an engineered direct exchange multi-split system incorporating at least one variable speed compressor, variable capacity compressor, distributing refrigerant through a piping network to multiple indoor fan coil units each capable of individual zone temperature control, to proprietary zone temperature control devices and common communications network.

And those are þ there are two further subcategories, VRF multi-split, and VRF heat recovery and multi-split systems, and these types of systems are newly introduced to the U.S. market within the last six years.

MR. BROOKMAN: And your citation
again is what?

MR. DOPPEL: This is the ARI draft standard 1230.

MR. BROOKMAN: So I'm not sure I got it there. So what are you saying about the product classes and this list.

MR. DOPPEL: This is what þ there was some exception taken to my call for a separate product class, and just to make sure that everyone understands what we are calling VRF, this defines what VRF is.

MR. FERNSTROM: So Gary Fernstrom, I'd like to go back to the application issue briefly. We have--for automobiles--city and highway mileage rating. I don't think it's at all unreasonable to have for air conditioning equipment two or three different application relative ratings.

MR. BROOKMAN: Thank you.

Your name, please?

MR. ARNOLD: Dan Arnold of Nordyne.

I'm glad you brought up the automotive
analogy, because that, as an engineer who
works and lives with this test procedure
everyday, people ask me, how do I describe
SEER in layman's terms, and I tell them it's
basically like city miles per gallon, cyclic
measurement of energy efficiency of the unit,
and EER, now that we have that published and
available, is the steady state; it's like
your highway miles per gallon, but Hung
Pham's point, I'm not quite agreeing with the
fact that the test procedure is broken. I
don't really understand the assault on the
test procedure. It does serve as a
comparison for consumers to compare one unit
to another unit. In my 25 years in the
industry we have done our own analysis
internally that shows the energy efficiency
that was represented by SEER is fairly
accurate as a general rule.
We do publish extended performance
ratings. All manufacturers do it different,
different conditions, different wet bulb/dry
bulb conditions, they are available on websites. People do use them, so if you want to compare an air conditioner other than the standard 8067 indoor test procedure rating point, that information is freely out there for dealers and contractors to use.

So I just am not agreeing that the test procedure is broken. I think it served us pretty well over the years.

Karim and then Paul. Go ahead, Paul.

MR. DOPPEL: As a result of the October 22nd final rule, the multi-split products now carry three different efficiency ratings, SEER ratings, one for ducted combinations, one for non-ducted combinations, and one for a mixed combination.

So if we were to do this by regional, then that would multiply that to probably nine different possibly nine different ratings for those products.
MR. BROOKMAN: Gary, go ahead.

MR. FERNSTROM: Gary Fernstrom.

I'd like to go back to the highway and city analogy again. You know we in effect have the supercongestion of high humidity in the south, and we have the ultra hot temperature in the California central valley, with low humidity, which might be the super highway with a high speed limit.

So I think it all has to do with the temperature and humidity issues that we are taking the measurements out.

MR. BROOKMAN: Jim Crawford.

MR. CRAWFORD: Jim Crawford. I guess two points or two things floating around here.

One is, I think the department needs to very promptly identify what measures are legitimately under consideration, consistent with the law so that we can see how far these horizons are spreading.

We are talking about a lot of
things that are fine at the philosophical level, but are they consistent with the law?

MR. BROOKMAN: You say measures,

you mean the stuff that p

MR. CRAWFORD: The SEER, EER,

whatever, hot and dry, hot and wet, all these various measures that we've talked about, do they have anything to do with the law? And if not, perhaps this is not the venue for discussion.

The second point, I will come back to the VRF issue, a Japanese manufacturer not present here today, Daikin, imported VRF systems back about 25 years ago. They were multi-splits, and they were modulated in terms of refrigerant flow. It was nothing new.

MR. BROOKMAN: Dave. You'll pass?

Lance?

MR. DELAURA: I think just a quick comment. The very essence that we are going to have really three regions, if two
additional regions are adopted, is the real reason that all of these technical issues are being discussed.

If there was a one-size-fits-all approach, you wouldn't have two additional regions. It would be the same old same old. You've got two new regions which is going to make three; it is going to be a complicated process. And as I said before, I think it is our opportunity to get it right. If we are going to have the regions, the rigor needs to be there to ensure that having those regions is reasonable, and that it actually makes sense, and that it makes sense for consumers.

MR. BROOKMAN: So what is your p what would you be advocating with respect to these measures?

MR. DELAURA: I think it's the same thing we said before. Depending on the region that you have the standard for, there are going to be intricacies. And at some point we should talk about that as well.
What are those regions? What do they look like? And that is going to drive a lot of those processes. If the regions look very similar, which they won't, then the test procedures will be similar. The fact that they will be different, there is going to be different dictates in terms of what the elements are.

MR. BROOKMAN: Kyle.

MR. GILLEY: Just a couple of clarifications there. DOE has the authority to make it up to two regions. The other is, there has to be justification for doing so. That statement implied that it's just a foregone conclusion, that there is justification for regional standards, which will be a debated point throughout this entire discussion.

The other thing I would point out as it relates to regional standards, is that it was a political solution brought about by Congress in reaching a compromise during the
legislative discussion.

So to assume that there is any technical justification whatsoever for regional standards is a stretch.

MR. BROOKMAN: Okay, I want to return to final comments with respect to these product classes, and then we are going to move on.

Yes.

MR. ROBERTS: Tom Roberts, and this is kind of a carry over question, but I had to get this in. The regional discussion is interesting. We hear a lot about California. So just for a real layman here, could you just tell me what region California is in, and is it hot and dry or is it average?

MR. DELAURA: It is undefined yet.

MR. ROBERTS: But could it be?

MR. DELAURA: It could be part of it could be.

MR. ROBERTS: Part of the state?

MR. DELAURA: Yes, the coastal
portion maybe not. But yes.

MR. ROBERTS: I think that is a perfect answer.

MR. BROOKMAN: Let's move on then.

Michael, 24.

MR. CHRISTOPHER: So we wanted to call attention to a couple of these products, one of which is the SDHV systems, and as I've noted, the three manufacturers that have filed for exception relief have received that in the form of standards at 11 SEER and 6.8 HSPF.

This was effective January 23rd, '06, and remains effective until DOE issues a new standard if any.

So in this rulemaking DOE is considering keeping SDHV a separate class, and conducting an analysis to determine what the most appropriate standard level for the system is.

And to that end, DOE is looking for feedback in particular on SDHV systems
including the information that is listed here in NM 34.

MR. BROOKMAN: Yes, Craig.

MR. MESSMER: Craig Messmer with Unico. It looks like I'm the only SDHV manufacturer here today.

Absolutely we want to continue the separate product class. We do have a separate product test standard, and it is considerably different than the normal products that you have, and we also think that that is probably one of the criteria of having a separate product class of any type is to have a separate test standard.

DOE did an analysis on SDHV in 2002. We have þ we thought that was an excellent analysis. Unfortunately it didn't get done in time to be included before the 13 SEER rule. We would love to see some kind of legislative action that would allow the separate product class to actually have an official minimum standard instead of the
exception process.

That's not anything that DOE can do, we understand that. But we strongly encourage them to do some kind of analysis or whatever is appropriate for this product class, if the standards do change. We certainly would work with the department in establishing what an appropriate standard would be for this class. So we'll submit information on that.

MR. BROOKMAN: Thank you.

Yes, Harvey.

MR. SACHS: ACEEE supported the waiver for these terms under the proviso that a firewall was erected. That firewall was a change in the rating method to 1.25 inches ESP.

This effectively limits the possibilities of this class being sold into conventional markets, as a way of that and the economics as a way of subverting 13 SEER in the mainstream market.
We think that is an example of the use of rating methods, and if that is more easily done with the appropriate firewalls as a separate class, we are okay with that.

MR. BROOKMAN: Okay. Other comments with respect to SDHV systems, and particularly you see what the department is asking for, market shares, shipments, cost and performance data, design specifications. Craig?

MR. MESSMER: Since we are the only ones in this room, I would hope that we could get more data than just our company on that. So I would encourage the DOE to contact the other manufacturers the same, since they are not here today.

MR. BROOKMAN: Okay, Karim, is that data you would gather, or you have gathered?

MR. AMRANE: We have really two manufacturers within the p

MR. MESSMER: Three. There are three.
MR. AMRANE: There are three. So far we can gather the information.

MR. MESSMER: That would be great. And the department would greatly appreciate that. Thank you.

MR. CHRISTOPHER: To your knowledge are there any other manufacturers of SDHV?

MR. AMRANE: I believe that's about it.

MR. CHRISTOPHER: Okay. So as I mentioned, we would come back to through the wall þ

MR. LEWIS: Before you proceed.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: Just looking at the time and the number of pages and where we are, we are way way way behind schedule, and if there are ways to be more succinct, it is important that we get your input, and if we want to put in a placeholder and say you've got a concern and express an interest, and promise to submit comments, if there is a way
that we can get through it. Nobody wants to be here until midnight tonight, and we want to cover all the topics.

So it's just a request that as we move forward, if we would be conscious that we have lost a lot of ground here. It's good time spent, and a lot of good input, but just be conscious of that as we move forward.

MR. CHRISTOPHER: A lot of the comments, a lot of the issues raised in this section are really looking for written feedback and data. So it's not necessary to make a comment unless there is a serious concern, you can put that forward.

MR. BROOKMAN: That's good. That's helpful.

MR. CHRISTOPHER: Okay. So I mentioned we come back to these through-the-wall products. These include two main types, the split systems which are condensers that use conventional air handler, and package systems which are similar to package terminal
air conditioners and heat pumps; however the air is ducted to the interior space as opposed to being a ductless system.

There are currently standards that are the result of an engineering analysis that was conducted several years ago, I don't know the exact year. Split systems currently at 10.9 SEER, 7.1 HSPF, and package are at 10.6 SEER, 7.0 HSPF.

And as I mentioned before, this class in the definition there is a provision often referred to as the sunset provision, where this class is no longer in existence as of January 23rd, 2010. And in review of the previous rulemakings and the discussion that went on leading up to the final rules of the 13 SEER, it's our understanding that these through-the-wall products were originally part of the so-called space-constrained products, and therefore the intent is that they become part of the overall space constraining class, when that sunset
provision is reached.

And therefore DOE will assume that and because that provision expires in 2010, standards would be effective 2016, that's when the analysis assumes the provision it's in our analysis, that's when we assume all the factors. DOE will assume a 12 SEER baseline, 7.7 HSPF, or 7.4 HSPF for the through-the-wall systems.

So we are looking for feedback on that, and any available data that are for through-the-wall products, or any other space-constrained products. And it's item 3.5 here.

MR. BROOKMAN: Yes, Jim.

MR. CRAWFORD: Jim Crawford, Trane.

And I would cite page 26 of the framework document, which makes the point that these products are being used in new construction, and I find it strangely inconsistent that we have various product classes that don't meet the performance of the mainstream products.
and we are preparing apparently to continue to let that situation exist far into the future.

I don't understand why we can allow 10s and 12s in a market that requires a minimum of 13, and talk about þ and we are going to continue that practice in the future.

MR. BROOKMAN: Thank you.

Please, Tom.

MR. ROBERTS: Was there þ I was trying þ I'm stumped by that too. Is there any meat on that bone? Is there some logic to it? I guess it was replacement logic possibly at the beginning.

I agree with Tom, that it goes into new construction an awful lot. It's the chosen system because it does dive under the rate.

MR. BROOKMAN: Okay, thanks for that comment.

Kyle.
MR. GILLEY: As a manufacturer of this equipment that has a very special application, we will file formal comments on it.

MR. BROOKMAN: Okay.

Other comments on through-the-wall air conditioners and heat pumps.

Yes, your name again, please.

MR. MUCCIOLA: Vince Mucciola, National Comfort Products. I understand the concern about the new construction, but we are really turning our backs to existing openings that would be catastrophic for people to do replacements, high rises and what have you, and we are turning our backs to the public who would have to incur those costs to try to change openings on the 20th floor, or look for other ways to provide air conditioning.

It only leads back to the question that we had about repairing old systems, that these old systems that are out there are 4,
5, 6 SEER units by today’s standards, and at least it gives them efficiencies that are better than what they had before.

MR. BROOKMAN: Thank you.

MR. CRAWFORD: But that is no reason to permit its use in new construction in the future.

MR. MUCCIOLA: We didn’t say anything about new construction. We said we could have a new construction unit, but we should still continue to look at, what do we do about existing openings out there.

MR. CRAWFORD: I refer you to the framework document.

MR. BROOKMAN: So those last few comments from Jim Crawford.

Okay, final comments on this subject?

All right. Yes, one more, and your name please for the record.

MR. STANGA: My name is Mark Stanga, and actually I am here for Daikin
Industries. I am here just to I'm afraid that maybe we've moved a couple of slides past where the last reference to Daikin came up, and I wanted to set the record straight about that.

Daikin in fact did have a distributor selling multi-split modular refrigerant flow systems of some type some years ago, but Daikin has not had any equipment for sale in the U.S. that is inverter driven of the kind that as Paul Doppel from Mitsubishi mentioned is within the scope of the new AHRI draft standard 1230.

I just wanted to make that clear.

MR. BROOKMAN: Thanks for that clarification.

Okay.

MR. CHRISTOPHER: Thank you Doug.

Okay, the last type of product that we want to call attention to are the ductless split systems. We have had some comments and
discussion on already. These include both mini-splits, the one-to-one, and the multi-
splits.

And it's our understanding they still represent just a small bit of the market, the domestic market.

And in the final rule for the test procedures that was in August of last year, DOE did state that it believes the ductless splits compete primarily with the conventional split systems. Therefore in this rulemaking DOE is considering keeping those as part of the conventional product split system product class. I think we have heard some comments already contrary to that, and we appreciate those.

Again, item 3.6 is asking for any information data that relates to ductless splits.

MR. BROOKMAN: Yes, Paul.

MR. DOPPEL: Question for DOE.

What you mentioned there that it is a small
fraction of the domestic market. At what point of market share would we become more significant? What is the threshold, 1 percent, 2 percent?

MR. BROOKMAN: Lewis.

MR. LEWIS: Not only are we not prepared to answer that question right now, but I'm not sure that it's the kind of question that adds to clarification right now.

I think what we want to do is we are putting up a straw man of what our understanding is right now. And if somebody has other data that counters it or says you are wrong, to show us different.

I don't know that there is a definition or an exact percentage or something, but evidently the data we have does not show it to be significant in large portions. So if you would have data that would help us to better understand that, the plea will go out several times today, please
to help us to see more clearly on issues.

So it's a matter of, we are dealing with the data we've got right now, and anybody that has other information that could help us to see more clearly it would be beneficial.

MR. DOPPEL: Okay, Paul Doppel again. We will try to provide what we can within ARI guidelines, and just for further clarification, we would concede that multi-splits would compete with central air conditioning systems, but not the mini-splits. Mini-splits should be a separate product class, because there again they are used for room air conditioning, and not central air conditioning.

MR. BROOKMAN: Additional comments? Let's move on to technology assessment.

MR. CHRISTOPHER: Okay, so the other part of the market, technology assessment, is the technology assessment. This is where DOE identifies different
technologies that can be used to improve the efficiency of air conditioners and heat pumps. We have received several comments today so far on this.

I am not going to list all of these. But just for example, as you know, increased evaporator-condenser coil area; higher efficiency compressors; and evaporator-condenser fan motors for example.

And general requests for comment, what technologies or design options if any should DOE add to or remove from this list? And please provide any rationale.

MR. BROOKMAN: Tom Roberts.

MR. ROBERTS: Tom Roberts What is the nature of the request? I don't understand it. I mean the standard is really a prescriptive standard, and I don't understand the specific reference or the need to include the specific technologies.

MR. CHRISTOPHER: Well, the standard is actually not a prescriptive
standard.

MR. ROBERTS: No, I'm sorry, I said it the opposite way. In other words, why the specific use of technologies? I don't understand it.

MR. CHRISTOPHER: Well, we'll get to an engineering analysis, that we are primarily taking an efficiency level approach. But we still conduct a screening analysis and a technology assessment just as we do with every rule, and that information will supplement that efficiency level approach as we are looking at how manufacturers þ what it means to go from a 13 SEER to a 14 SEER, and does that involve a particular technology, or are there many different ways to go about it.

MR. BROOKMAN: So you can see the list, and what do you think? Should there be technology approaches that should be added? Or should some of these items be removed from the list?
Bill.

MR. McCULLOUGH: I would say one of the things that needs to be considered in this, and someone mentioned earlier a view, is this currently on the market, close to the market, or is it a research mode? And I am jumping ahead a bit here to slide #30, because the cost difference of that would be strikingly different if it is available now on the market versus something that may become available on the market. Things like fuel cells. Can you do it? Sure, but is it does it provide a good cost benefit for the consumer? Probably not.

So it was both a comment and a question: is there going to be consideration given to what stage that we believe this technology is in? And then will that be considered.

MR. BROOKMAN: Ron Lewis.

MR. LEWIS: One of the analyses that we do is engineering analysis, and there
is a screening analysis that is done that
looks at the feasibility and availability and
other things. There is a tight focus given
to the practicality and what is available.
It is we are required, one of the first
slides that we showed were the seven factors
that Congress requires us to consider.

And they require us to start at
max tech and work our way down and go through
the feasibility of things. They have to be
economically justified, I always get the two
of them confused, and technologically
feasible.

And in going through that, we go
out of our way to try to know as much as we
can about the universe of the products that
are available; what is their state; and then
go through the consideration. That then
further gets into the lifecycle costs and all
that.

So there is a lot of detail gone
into looking at we don't just go on the
promise of something to come, and its potential. We need to get some substance to try to back up what we are considering.

So it's not to rule it out. We are required to start at max tech, the way max tech has been looked at before is, it's something that is not R&D. It's something that is close to commercialization, or in the stream right now, something that has been validated, and is here and real. It's not conceptual.

So the process is pretty robust in all those considerations.

MR. BROOKMAN: Ted.

MR. POPE: Ted Pope. Particularly assuming that there is ongoing discussions of regional standards, PG&E and I'm sure the other utilities, and energy commission and so forth, in the West, would strongly recommend consideration of evaporatively precooled air conditioning systems.

MR. BROOKMAN: Thank you.
Other candidates for adds or subtracts from this list?

Jim Crawford.

MR. CRAWFORD: What is a dual port expansion valve?

MR. CHRISTOPHER: I don't have a technical definition for you.

MR. CRAWFORD: Well, unless you can define it, I suggest you take it off the list.

MR. BROOKMAN: Harvey.

MR. SACHS: Harvey Sachs. I would just ask Mr. Lewis for the definition of "here." In terms of these technology options. Does "here" mean available in U.S. products, or available in substantial scale of the global market, and particularly it might refer to things like modulated compressors that are here niche products, and very high in premium products, and may be more common as a fraction of the market in some other countries. So they are listed.
They are listed, but Mr. Lewis brought up the term "here".

MR. LEWIS: I take your challenge to add greater precision to that. I am not going to do it right here. There's the word, here, again. I will take into consideration your sensitivity to that, of what is the geography or the universe it's in. So thank you for that question.

MR. BROOKMAN: Fred.

MR. KELLER: Fred Keller. I would just suggest that DOE adopt the NASA technology readiness levels, and have a level of TRL-7 or greater as a technology being included. It's a fairly well documented method of rating technologies for their readiness to go to market.

MR. BROOKMAN: Thank you.

MR. LEWIS: Excuse me, is there a place where that is on their website?

MR. KELLER: I think you can just Google massive technology readiness levels,
and you will get a wealth of information.

MR. BROOKMAN: Thank you.

So other comments, final comments perhaps, on this list, what should stay in, what should be supplemented, what should be removed?

MR. CHRISTOPHER: This goes to what Ron was talking about, the screening analysis. So in technology's estimate, we sort of take an all-encompassing view of everything that is out there. And there are these four factors, that really come from the seven factors in APCA that requires you to look at the technological feasibility, practicability of manufacturing still in service, any impacts on product utility, or availability to consumers, and impacts on health or safety.

And so from this all-encompassing list of technologies, if one of these factors is not met, then DOE does not look at it any further.
So typically what that means is that technologies that are not commercially available or not close to commercialization are not typically included.

So following the screening analysis with this filtered down list of technologies, DOE conducts the engineering analysis. And the purpose of the engineering analysis is to construct what we call a cost efficiency or a manufacturer’s selling price efficiency curve, which is really just the relationship of price or cost to the SEER or HSPF level, and this relationship is used in the analyses that are conducted downstream, including LCC and payback period, manufacturer impact analysis, employment impact analysis.

It's a methodology that DOE will follow in conducting these curves, these cost-efficiency curves, will be to first establish a baseline, and in this rulemaking that's fairly simple. DOE will use the
current standards in each product class.

From establishing a baseline, do you estimate the cost of these baseline units, and that will be done through a reverse engineering approach, also called the tear-down approach, through which you estimate the costs of products in each class at a representative capacity.

Once the cost of baseline units is established, you will look at the cost of units above that baseline up to and including the max tech, which runs both to what we said earlier, and then DOE will document the results including supplementing with any data or information from any manufacturer catalogs, websites, trade publications, and other sources.

So there are three items here for comment. In general DOE is looking for feedback on the use of an efficiency level approach, and this approach is used in the previous rulemaking, to determine the cost-
efficiency relationship.

Item 5.3 is looking for feedback on what appropriate representative capacity to use for each product class. And for the conventional split and single package product classes, DOE will typically use a three-time unit.

But DOE is also looking for information on how it could consider the limitations of products that are not at the representative capacity. Those are at much smaller and much larger capacities, and how it can take that into account as well.

MR. BROOKMAN: Several specific questions.

Yes, Lance.

MR. DELAURA: This sort of goes to the point about the time-of-use rates, when you talk about payback and lifecycle, why it would be important if you were considering the regional standard, let's say in California, where there are those types of
economics, it will make the economics of payback look very different for high efficiency units.

MR. BROOKMAN: Thank you.

Andrew.

MR. DELASKI: Can you back up a slide, please?

MR. CHRISTOPHER: Sure.

MR. DELASKI: So on your third chevron there, estimate costs of units above baseline, could you just elaborate a bit on how you make those estimates?

MR. CHRISTOPHER: Sure, well some of that comes from physical tear downs. Some of that comes from just knowledge of our experts in determining what it costs to increase the surface area of a coil for example. And then some of that comes from data on specific design options like motors, and things like that.

MR. DELASKI: My memory is getting a little bit fuzzy here, but I think in the
last rulemaking we ended up with three sets
of costs, costs that were submitted by the
manufacturers, that were then published along
with costs that were developed by DOE, which
led to a lot of confusion. I hope we can
avoid that in this particular rulemaking, but
I wonder how does manufacturing input to your
process in how you come up with these costs?

MR. CHRISTOPHER: The intent here
is to do the cost estimation through DOE and
its contractors.

MR. BROOKMAN: Karim.

MR. AMRANE: Karim Amrane, AHRI.

As I stated this morning, I think there is
evidence that whatever those cost efficiency
curves þ and it's not just the curve, it's
the markup and everything else that comes up
with that, ended up underestimating literally
the cost of a 13 SEER unit today. As Andrew
was saying, we provided data last time that
was at the end of the process not taken into
consideration.
But we believe that our data was much closer to reality than what DOE came up with.

So I guess while not opposing DOE doing what DOE wants to do, in terms of using its own reverse engineering analysis. But we believe you need to step back and look at what you've done, and assess where things need to be improved.

MR. BROOKMAN: Thank you.

MR. DELASKI: I support the notion of some sort of retrospective analysis to see how good a job did you do last time in coming up with cost estimates?

The challenge, and I think Jim Crawford did an excellent job early on of saying or talking or stepping us through what had happened to commodity prices over the past five years or so. The challenge is going to be to disentangle the impact of the standards from things that are happening on the market independently of the standard.
But knowing having some retrospective analysis would be very, very valuable.

Mr. Brookman: Fred.

Mr. Keller: I agree with the need for retrospective analysis, and I think it should include more than just the cost estimate. It should also look at the technology assumptions that were made in the prior rulemaking. It said higher efficiency compressors were going to be available; et cetera, et cetera. I think you ought to look at all of those and see how many of those actually became reality.

Mr. Brookman: Thank you.

Yes, Talbot.

Mr. Gee: Yes, Talbot Gee with Hardy. From the distributor's standpoint, I don't know if this was considered in previous cost evaluations too, but the total system cost, not just the condensing unit, but everything else that is required to achieve
that rating, that performance, which has been
a telling point to our members who have tried
to fulfill this upgrade.

MR. BROOKMAN: Tom.

MR. ROBERTS: And just real
quickly, the last go round seemed like it was
a theoretical addition of components. When
you can jump to the end and say, really it's
all about what the consumer cost difference
is.

And that's the thing where we lost
left out lots of components. The
additional freight cost due to larger units,
et cetera, et cetera, et cetera.

And I don't know how you could do
that other than to get better interaction
from manufacturers' distribution and
contractors to give you a landed cost to the
consumer to use real numbers. Then when we
do the next retrospective, I think you would
be much closer.

MR. BROOKMAN: Thank you.
Bill.

MR. McCULLOUGH: Bill McCullough.

I would also ask that one of the things that I'm not sure was considered with the April 23rd, 2006 NACA, to consider the cost of the units, as the SEER goes higher, the units get bigger, manufacturers can ship less product on trucks. That therefore drives the cost up, and that is a very real cost.

MR. BROOKMAN: Thank you.

Additional comments: efficiency level approach, representative cooling capacity, and very small and very large capacities, all three.

Jim Crawford.

MR. CRAWFORD: Jim Crawford, item 5.3, I think that for some of your products, one capacity may not be adequate to get the variabilities that they have to deal with. In particular as you get into the larger residential product there are physical constraints that you deal with that cause
that to be not well represented.

And one example today would be in inverters. A compressor inverter, to drive a five-ton unit, you are in a totally different price curve or cost curve than you would be for say a two or three-ton unit.

MR. BROOKMAN: Thank you.

Yes, Andrew.

MR. DELASKI: I wanted to just briefly come back to this issue of a retrospective. I mean the reason to do a retrospective isn't so much to beat up on somebody one way or the other on how well did we estimate the last time. It's obviously to inform doing a better job can we get closer this time in doing the DOE estimates.

I think it's a mistake though to go back and say, well, did manufacturers build it the way that we thought would be most cost effective? Because the answer is going to be no. No. You had a performance standard, and the manufacturers go about
their business of meeting that performance standard, the best that they can, as cost-effectively as they can.

Once they put their engineering expertise to it, it far outdistances the engineering expertise the department could apply to it.

So I think you are going to find that, no, it wasn't complied with the way DOE thought they might comply with it, at least cost basis. It would have been complied quite differently, maybe differently by different manufacturers, though.

I would look at the overall cost impact you estimated, and how close was that, as opposed to, did we get each step of the process right.

MR. BROOKMAN: Yes please, Ron Lewis.

MR. LEWIS: I was going to try to sum up this great exchange of inputs here. But it's one thing to say you got it wrong,
but to have any sense of pointing to the areas where it was wrong, and what was wrong to your observation--that sense of precision can save us time, and I'm going to stress throughout the day, we are under court order. We've got a delivery date certain that anything that you can give us that gives us clarity versus just a general request to go back and revisit something which just can gobble up a lot of time, and we may not come to the same conclusion you do after that.

So if you want to make your point, you want us to see through your perspective, I just recommend highly that in a timely basis you give us the most specific input you can, so we take another look at it through that perspective, and understand what your concerns are.

Just in general to go back and redo it may not serve either of us very well.

MR. BROOKMAN: Jim Crawford.

MR. CRAWFORD: To elaborate just a
little bit on the point that Andrew was making, there are design technologies that are brought up repeatedly by the department, and for which they paid for studies on and off about the last 35 years having to do with air movement.

And the conclusions that they come up with are always wrong. They want us to use backward inclined fans, and they want us to use air coil blades on prop fans, and we've been aware of those technologies.

We in our industry are well aware of various fan technologies. Some of us manufacture big backward inclined fans with airfoil blades. We know about those things, and they simply don't work in cost-effective residential product.

MR. BROOKMAN: So let's then provide a final opportunity for comment on the questions you see on slide #32 related to the efficiency level approach first, and representative cooling capacity, we have
I heard a comment or two on that one. And I don't think we've heard much yet on very small versus very large capacities, and very large capacities, and the limitations on those.

Paul.

MR. DOPPEL: Paul Doppel on the representative cooling capacity. What may be typical for a central air conditioning system would be somewhere in the range of around 30,000. However, for ductless mini-splits it's 12,000, so again, that's a need for a possible separate class, a prior class for those. Because again the typical size is so much smaller, and the application is different.

MR. BROOKMAN: Hung.

MR. PHAM: Hung Pham, Emerson Climate. I think in the last round I believe DOE probably didn't treat the indoor section more explicitly.

I think as we went through the
higher SEER that turned out to be a much bigger impact, particularly to the point that Jim brought up there about two-ton, three-ton, five-ton indoor size is really a factor I think, may need to be looked at very carefully.

MR. BROOKMAN: Yes, thank you.

Craig.

MR. MESSMER: Craig Messmer. We absolutely have to consider the smallest and the largest. If you look into the directory today, you will find almost no one-ton split-system units, heat bumps. If you look at the higher efficiency units, they have again missing capacity tonnages. So this has to be you can't just pick the middle size which is representative. That's the easiest perhaps.

But we are going to be faced with the phasing out of certain capacity units if we continue to increase efficiencies without regard to capacity.

MR. BROOKMAN: Okay. Thank you.
So final comments on this set of slides? I think we have pretty much covered it.

Then I am going to suggest we take lunch. Before we go to lunch, though, we have an announcement.

Ron Lewis.

MR. LEWIS: I realize that a lot of times that the meeting carries on for longer than some people had planned, and they are trying to make airplanes, et cetera. So rather than wait until the end of the day, we did discuss the options on getting comments in, and we will in a Federal Register notice, announce that we will extend the date from the current date for comments of July 9th to the end of the month, July 31st, giving 3-1/2 more weeks. So we appreciate that input. We don't want to put you in an uncomfortable position.

We are just asking that if you would, please, our history has been that most
people take all the time available, and we get all the comments in like the last 24 hours.

If you do have the comments early, if you have them done, we are extending the time, but we would appreciate your getting them to us as soon as you can so we can thoroughly put the attention to your comments, before we are just flooded with everybody's.

Thank you.

MR. BROOKMAN: We are a little bit behind schedule, but we will make it up when we return from lunch. It's pretty hard to do lunch in less than an hour here. So it's now 12:30. I'm going to suggest that we return at 1:30 and resume promptly at that point.

This room will be locked, so you can leave stuff in it. Please wear your badge here in the building.

How many of you, is this your first trip here to Forrestal? A few of you.
There is a cafeteria, a sandwich kind of a place, and some hot food, just one floor below where you got your coffee. Most everybody will be trooping en masse underneath, down one floor and all the way over to the cafeteria on the far side. So follow the crowd, and we will resume at 1:30.

(Whereupon at 12:32 p.m. the proceeding in the above-entitled matter went off the record to return on the record at 1:32 p.m.)

MR. BROOKMAN: Thanks for being back here on time. We're a little bit behind, but none of us are going to be here at seven o'clock this evening. So we'll see if we can stay as focused on the content and the comment as possible.

As I understand it, Brenda, at the break you're going to hand out a list of participants today so that we'll have that available to people as well.

So, Mike, are you ready to go?
Not quite? Close?

I appreciate this morning. There was a lot of good exchange, and that's very helpful to the department. So let's keep that up and also stay focused at the same time.

MR. CHRISTOPHER: Okay. I'm ready.

MR. BROOKMAN: Okay.

MR. CHRISTOPHER: All right. So DOE will look at baseline all the way up to mass tech and a number of levels in between. These are some of those, not all inclusive, but some of the ones that DOE will look at are the Energy Star and the Consortium for Energy Efficiency Levels. These are listed here.

For example, for split system air conditioners, Energy Star which corresponds to CE-01s, 14 SEER, CEE Tier 2, 15 SEER, et cetera.

The maximum available that DOE has
identified in the three ton size is 21 SEER for split and 16.6 SEER, I should say, for packaged.

For heat pumps, the maximum available DOE has identified is 19 and a half SEER and 10.8 HSPF and 16.4 SEER and 9.0 HSPF for packaged.

MR. DOPPEL: If I may --

MR. BROOKMAN: Paul.

MR. DOPPEL: Paul Doppel.

There are ductless products that are at the 23 SEER level for the heat pump.

MR. CHRISTOPHER: Okay. Thank you.

MR. BROOKMAN: Thank you.

MR. CHRISTOPHER: So as I mentioned, DOE is going to look at the levels that we listed, but there may be other levels analyzed, and DOE is required to look at the maximum technology level. However, that does not necessarily correspond to the maximum available, those four that I just listed.
So there's two items for feedback here. DOE is looking for input on the efficiency level of the plants to use, and is also seeking input on what appropriate mass tech levels are for each product class.

And then DOE is also looking for what are appropriate levels for SDHV systems and space constrained products.

MR. BROOKMAN: Okay. Yes, please.

Hung first and then Karim.

MR. PHAM: Hung Pham, Emerson Climate.

One concern I have about the mass tech is that it is a variable speed technology. That is a new technology that I'm not sure that we have all looked at the impact of how the power is measured with inversion and all of that. If we're going to go to talk about millions units and like that, I think there is probably some need for defining the measurement a little bit better.

I'm not talking about the test
procedure. I'm talking about the power
measurement.

MR. BROOKMAN: Let's let Don
follow on, Karim.

Are you following his stream of
comment?

MR. BRUNDAGE: I have a separate
comment.

MR. BROOKMAN: Okay. Karim then.

Thanks, Don.

MR. AMRANE: Karim Amrane, HRI.

I guess the level that you're
looking at, for example, you're picking the C
level. I mean, why is it that you're picking
the C level? Is it because they're out
there?

MR. CHRISTOPHER: They're there.

They're out there, yes.

MR. AMRANE: I know they are out
there, but is there any particular reason?

Because we are assuming here, yes,
you are assuming that, for example, on heat
pumps that whatever the 15 SEER, 8.5 HSPF is something that makes sense, and it might not make sense.

MR. CHRISTOPHER: It may not be cost effective. It may not work.

MR. AMRANE: It might not be cost effective. It might not even make sense. I mean, the fact that CE came up with those levels doesn't mean that they are really something that you need to look at.

I think specifically heat pumps, you look at the relationship between CR and HSPF like you did, for example, in the previous rulemaking --

MR. CHRISTOPHER: That is something that --

MR. AMRANE: -- to be sure that there is correspondence between the SEER and the HSPF.

MR. CHRISTOPHER: Okay, and that's something that we intend to do, and we started to look at it.
MR. BROOKMAN: Mike, so these are products that you know are generally available and they're listed and they're in catalogues and they're being sold?

MR. CHRISTOPHER: Yeah, and AHRI has a database of products that we've looked at that we can use to look at the relationship such as SEER and HSPF.

MR. BROOKMAN: Okay, okay. Don.

MR. BRUNDAGE: Just to clarify, you say you're going to look at 14, 15, 16 and 21 for split systems. You're also looking at the base level of 13, aren't you?

MR. CHRISTOPHER: Correct.

MR. BRUNDAGE: Okay. Because the way this is written implies that 13 isn't even on the table on this rulemaking. So that may be something that needs -- to just take a base level in this chart may make it clarify things.

MR. BROOKMAN: Thank you. Thank you.
MR. DELAURA: Just a quick comment on CE as a CE number. These may not be the right levels, but CE does look at the national perspective when they're setting program standards, and they do look at the availability of equipment, and they certainly don't just look at a particular state. They look at what's out there, what customers demand, and what they can provide rebates on. So generally the CE levels are pretty good in terms of a proxy of what sells in the marketplace.

MR. BROOKMAN: Thank you. Yes, Jim.

MR. CRAWFORD: Jim Crawford, Trane.

I'm not sure exactly what point Hung Pham was making, but I think I know, and it's a point that maybe deserves a little bit of elaboration. Some of the technologies that we are going to consider do not draw
sinusoidal currents from sinusoidal way forms, and as a consequence they generate lots of harmonics, and those harmonics can be managed to a degree, but those harmonics are of concern to the utilities, legitimate concern to the utilities.

And if you get into a situation where you were to have a very large installed population of those, then those air conditioners would begin to look like a bunch of battery chargers, and the battery charger is a very unpleasant load to the electric utility.

Maybe that should be monetized in some way also.

MR. BROOKMAN: That's interesting.

MR. PHAM: Thank you, Jim.

MR. BROOKMAN: Yes, please.

MR. ARNOLD: Dan Arnold.

I just want to make sure that what's included in the analysis is the fact that I think we can all agree in this room
that it would be preferable to sell a heat pump to a straight air conditioner with electric resistance back-up heat. So the consumer does have a choice when they go to either install a heat pump or replace a heat pump, and that is an air conditioner with electric resistance back-up heat.

I know it was discussed at the last rulemaking. I'm not sure how to capture it in the analysis, but it should be considered.

MR. BROOKMAN: Thank you. Thank you.

And what about the second item, SDHV and space constrained products? Yes, Craig.

MR. MESSMER: Craig Messmer of UNICO.

All of the SDHV product manufacturers do not make enough for a unit, and we believe that whatever minimum efficiency for conventional systems, whatever
condensing units, heat pumps come out of that rule would be used as the baseline for analyzing the SDHV product line. So we'd start there and then work up.

Certainly having the mass technology relooked at again would be useful, but I wouldn't like to see any statements based on that.

MR. BROOKMAN: What is suggested as mass tech in the table above, does that comport with your view of reality?

MR. MESSMER: No, no. There's a separate document that DOE published in 2002 that shows the mass technology for SDHV that's not on this chart, but they showed, I believe, 13.4, and that's assuming a 14 SEER nominally sized outdoor unit.

Certainly it might be a higher maximum today, but we don't believe that SDHV should be required to have two-stage condensing units when the minimal for conventional might be single stage, for
example.

So anyway, we probably would have to have a separate chart for efficiency levels to be looked at, but since it's such a small product class, we would agree they would just start with the baseline and consider that the outdoor unit.

MR. BROOKMAN: John.

MR. MANDYCK: John Mandyck with Carrier.

Is there anything compelling DOE to look at whole numbers only in the analysis for the SEER standard?

MR. CHRISTOPHER: The short answer is simplicity, but if there's compelling reason to look at fractional SEER, you know, we'd like to hear your opinions on that.

MR. BROOKMAN: John, do you think there's a benefit in that?

MR. MANDYCK: I was just curious as to why there were only whole numbers here.

MR. BROOKMAN: Yes, please, Fred.
MR. KELLER: I would just elaborate. Is it possible that DOE would set a SEER minimum, a fractional number rather than a whole number?

MR. CHRISTOPHER: It's certainly possible. I think DOE would not be precluded from doing that for any reason.

MR. BROOKMAN: Yes, Talbot.

MR. GEE: Yes, Talbot Gee.

One thing just for consideration is when you're looking at market penetrations at these various levels and everything like that into the cost analysis, take into consideration that a lot of these levels are incented in some way, shape or form, that should this become a new minimum, it might be reasonable to assume that those incentives might not any longer exist.

So I'm not sure exactly how you get to that endpoint, but take into consideration what role current incentives might have had in the market adoption at
these levels and the effect of there
potentially not being any incentives at these
levels should a minimum raise any of these
points.

MR. BROOKMAN: Okay. Lance.

MR. DELAURA: Just to go back to
the CE point and also from a utility
perspective, the levels rise on efficiency
for many different pieces of equipment, and
the utilities and others that provide rebates
continually look at this. There's going to
be a new baseline established whenever the
regional standards and the national standard
goes into effect, and it will be measured
against that.

So typically what we see with CEE
is CE becomes Energy Star at some point.
Energy Star moves up. The bar just keeps
getting raised, assuming equipment is
available that you can rebate, and you just
keep raising the bar. It's the cycle of
doing this that's been going on for nearly 30
So I wouldn't be as concerned about the rebates or the incentives to customers going away. It will just be at different levels for different pieces of equipment.

MR. BROOKMAN: Go ahead. Follow on.

MR. GEE: Yeah, I guess I should go farther and say the concern is the percentage of that rebate or that incentive has to grow in alignment with the increased cost of product. So if the minimum SEER goes up, then you can't just take that same level of rebate and push it up.

And our concern is that those funds are finite, and you get to a point of diminishing returns.

MR. DELAURA: I think that's a good point, but the rebates are typically provided for the energy saved. It's not so much based on what the cost of equipment is.
It's looking at what the energy savings are. So assuming that savings is there, there will be the analysis that will back rebates that will go with that.


MR. CRAWFORD: Jim Crawford.

I'm just going to state the obvious. As we go to higher and higher SEERs and HSPFs, we are in a territory of significantly decreasing return. For every point that you make, you get less than you did for the point before, and in the territory that we seem to be headed for, that's a very significant factor.

MR. BROOKMAN: Some final comments on this slide? I'm going to keep pressing us ahead.

Andrew.

MR. DELASKI: Yeah, I just want to reiterate for this slide the point that I was going to make earlier about the appropriateness of SEER as a regional metric;
that these levels appear to be appropriate to evaluate for the base national standard, but the right levels to consider for the regional standards that should be considered at the point, I think, could very well be different depending on what that metric is, or looking at alternate metrics, and EER brought up earlier today potentially a useful metric for determining performance in a hot, dry climate.

I mean, let's just be real clear. It doesn't make sense to measure efficiency in Phoenix the same way using the climate of Chicago. So looking at a regional standard that puts Phoenix -- and these aren't the right levels. We should be looking at something else that tells us how that air conditioner operates in Phoenix.

MR. BROOKMAN: So how would you suggest the department modify it?

MR. DELASKI: Well, one suggestion that has been brought up earlier today would
be to look at the EER levels for the hot, dry climate. That was a suggestion that I think should be considered.

MR. BROOKMAN: Yeah, I figured we'd get some push-back on that. Karim.

MR. AMRANE: Karim Amrane with HRI.

I think we've been there before on this EER issue, and the last time we looked at it, DOE decided not to adopt an EER because of concerns that we won't be getting the savings that we would be getting with a SEER rating only.

So, again, I mean, what you're asking, Andrew, and what others are asking as far as the test procedures is something that maybe as a group here we could look at, but we're talking about two different things. We're talking about test procedures versus minimum energy efficiency standard, and if we want to link the two together, we need first
to address the test procedures, and that on its own will require much more time than three years that DOE has to finish this rulemaking.

MR. BROOKMAN: Okay.

MR. DELASKI: Yeah, a middle ground, I guess, might be to get EER-95, which is the current test method. You're right, Karim. Many of the advocates recommended in the last rulemaking that the department set a standard which would have two parts, a minimum SEER and then a minimum EER that would be a median value of products meeting that SEER to assure performance.

The department at the time said we could do that, but they choose not to in large part -- there were several reasons, but one reason was that SEER and the EER correlated quite well after CR-13.

But the department also showed that once you got past CR-13, the correlation broke down and that peak performance as you
get to the higher and higher temperatures if
the SEER goes up it can be a significant
concern.

So the determination in the last
rulemaking, I think, doesn't tell where this
natural median might go.


MR. CRAWFORD: Jim Crawford.

And I think that this little bit
of discussion highlights the fact that one of
the things that the department should be
doing first is defining what metrics they are
authorized to require in this rulemaking, and
out of that range, whatever that set of
metrics is, whether it be one or ten, which
metrics they are going to use for the
national standard and what metrics they would
use for regional standards. Because without
that, we're in a game here where nobody knows
the players or the cast.

MR. BROOKMAN: So let me note that
the next slide refers to regional standards.
Briefly, Don.

MR. BRUNDAGE: Yeah, I think to clarify a little, what I would like I realize it's way too early to say what regional standards ought to be, but some sort of legal statements from DOE on what the rules are and how much flexibility they have on regional standards and what the metrics can be because I've set in this room several times before and heard from DOE that SEER is the only thing you can measure air conditioners on. That's the only thing you can use, and we hear different things.

And just state plainly and not make you look through court cases on what are the ground rules we're operating under.

MR. BROOKMAN: Okay. Thank you.

Let's proceed. This is 35.

MR. CHRISTOPHER: Okay. I think we're all pretty familiar with the requirement in the EISA 2007's regional standard in Section 306, and it does permit
DOE to establish standards for one or two regions on top of a base national standard. So effectively that would be like three regions.

The standards for the additional regions are intended to be more restrictive than the base national standard, and the boundaries that DOE, the Secretary can define are contiguous states only, and Alaska and Hawaii can be included in one of those regions.

So Doug, I don't know if you want to flip a few back again, but these questions cover a lot of what we've already talked about so far today.

MR. BROOKMAN: Yeah, exactly, a good portion of this, but maybe people could be more specific about the first question: what would be appropriate regions. Maybe there's a map somewhere or something that you could point us to, Pat.

MR. O'CONNOR: Yeah. When the
legislation was being considered on the Hill, we tried to convince without success to the Congress to make sure that the regions do not split a metropolitan area. Neither the manufacturers nor the ACEEE would agree with us on that.

But we're very concerned if you split a metropolitan area, for example, and this isn't a good example, but you've got northern Virginia, Washington, D.C., and Maryland. It's a metropolitan area, actually consolidated statistical metropolitan area. For the distribution channel, that whole area product moves back and forth across the river. To split that metropolitan area would have significant competitive impact, particularly if there's a price difference between the higher efficiency unit and the national unit.

This is not a good example. Better examples are other states where you have smaller metropolitan areas, but still
significant areas. Several hundred thousand
people, I think, in the Quad Cities area, Illinois and Iowa, some of the Kansas-
Missouri areas.

We would hope that DOE would look very closely at that because that really impacts Item 1-6 because if you split metropolitan area, you are going to have an impact on distribution and distributors and installers in those metropolitan areas.

So I hope regardless of the fact that Congress in its wisdom didn't see fit to write that into the bill, that you would look at that very carefully.

MR. BROOKMAN: Thank you.

And I'm hoping in this conversation we're about to have about regional standards that we're not going to re-trod the ground we already went over this morning.

Harvey.

MR. SACHS: I very much appreciate
that comment, and I believe that ACEEE's position was to be supportive of giving the Secretary authority to consolidate a region, a metropolitan area into one of the two contiguous regions that it touched.

MR. BROOKMAN: So we want additional comment on how this might get configured by the department.

Gary.

MR. FERNSTROM: Gary Fernstrom.

So a point that I hadn't raised previously with respect to California is that we have coastal regions as well as hot, central valley regions, and if the regional standards are implemented through the states or if they're enforced through the states, I believe California would want to have the option of requiring the more rigorous standards in the climate zones where they make sense and not in the coastal climate zones where perhaps they don't make so much sense.

MR. MANDYCK: This is John Mandyck, Carrier.

That question was resolved in the legislation. I mean, that was debated over and over. So that decision has been made.

MR. BROOKMAN: And what was the resolution?

MR. MANDYCK: That the whole states can be (speaking from an unmiked location.)

MR. BROOKMAN: Thank you.

Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock.

Yeah, I guess as a follow-up, it's interesting if you look at the climate mass, and you discussed it earlier, I assume. California, 16 climate zones; so, you know, to have 16 separate regulations within California might not make too much sense unfortunately, and other areas. I know
someone was talking about Phoenix. Well, Flagstaff, Arizona has a similar climate zone to parts of Idaho. So there's actually other data just to see kind of how the climate zones all kind of go, and that might have an impact on some of your analysis.

Thanks.

MR. BROOKMAN: Charlie.

MR. McCRUDDEN: Charlie McCrudden, Air Conditioning Contractors.

Let me just to sum up what I was going to say, everywhere that Pat said distribution channel or referred to wholesalers or distributors, insert the word "contractors" because we have the exact same concerns, whether it be with a metropolitan area or how this all works.

I'm anticipating your next question, which is: what is the solution? And I don't know what the solution is in part because I don't know precedent that we can look to that we can sort of model the
solution after. Maybe there is one that exists on another product. I don't think there's one under NECA. I don't know.

And I think that stresses the importance of doing this very carefully, because this is precedent setting.

MR. BROOKMAN: Lance.

MR. DELAURA: One potential solution for California would be to have the national standard, whatever it is, as the coastal standard so that you don't have the coastal residents paying the extra cost for a benefit that they wouldn't receive, and then for those hot or more extreme climates have that be the regional, if you will, standard.

MR. GILLEY: Again, we don't believe DOE has the authority.

MR. BROOKMAN: Kyle, please, say your name for the record.

MR. GILLEY: Kyle Gilley.

I mean, based on the statute, we don't believe DOE has the authority to do
MR. BROOKMAN: I see John and Karim. Both of you go ahead.

MR. AMRANE: Exactly same.

MR. BROOKMAN: The same response, John, yes.

Andrew, go ahead.

MR. DELASKI: I guess I just wanted to make the point. I agree. The law is pretty clear. It says state boundaries. I think it's pretty clear on that point.

The point that I wanted to make though is that when you have a one size fits all national standard, it applies to every climate zone in the United States. Regional standards create the opportunity to have greater cost effectiveness for consumers by breaking the U.S. up into having one base national standard and two regional standards.

I would submit that boundaries should be drawn in a way that maximize cost effective energy savings as required by the
statute for the buyers and users of the product.

MR. BROOKMAN: Craig.

MR. MESSMER: Craig Messmer.

I'm going to agree with what he just said sort of. Instead of thinking about climate zones, we should be thinking about hours of operation and how they may closely align with one another, but really we're talking about, I think, justifying the cost justification of an air conditioner. So generally the northern regions don't operate an air conditioner as long as they do in the south. So that maybe should be the way the map is drawn rather than by climate. Something to consider.

MR. BROOKMAN: Pat.

MR. O'CONNOR: Pat O'Connor, American Supply Association.

I hope when DOE looks at drawing these boundaries it takes into account the willingness of the state when forced the
We have some history with this back with water heater standards in the late '80s and '90s, where states had the opportunity to set their own standards.

The State of New York had a heater standard, a very efficient heater standard, but chose not to enforce it. Entities like the State Housing Authority of New York were contracting with out of state vendors to provide nonefficient heaters because the state was choosing not to enforce it.

We went to the Attorney General of New York and his Secretary of Energy at the time and were not able to compel compliance by the State of New York.

So I hope as you draw these boundaries you consider the willingness of a state to enforce the standard that's applied to it. Again, we would guess that there are some states, using New England as an example within the New England region, that will probably just choose not to enforce it.
because it's against their traditional values to enforce it.

So there are benefits to these higher efficiency standards. I'll concede that, but those benefits only accrue if there's a true enforcement mechanism, and to just rely on the goodwill of consumer as the enforcement entity, I don't think that makes sense.

So, please, DOE, as you go forward look carefully at establishing some metrics to determine if the states want to participate or not. I understand California does. The State of New York probably does, but other states I don't know.

MR. BROOKMAN: Please say your name.

MR. SCHMIDT: Ed Schmidt, Northeast Energy Efficiency Partnerships. I would encourage as we look at regions and as we look at, again, the issue of EER that we also look at wholesale
electric markets and think about how many
hours of peak we're talking about and the
impact of a very few number of hours of peak
on prices at the retail level both for the
consumer as well as the manufacturer and
distributor up and down the supply chain.

A case in point would be New
England where it was 98 degrees Tuesday in
Hartford, and there was a lot of humidity and
there was a lot of air going. It will be 45
degrees tonight. EER in that region and
defining that region based on these dynamics
is huge.

MR. BROOKMAN: Thank you.

Joe Mattingly.

MR. MATTINGLY: Joe Mattingly,
AHRI.

We don't want to get into it here.

It would be a big argument, but we had the
issue of enforcement of federal standards by
a state in previously litigation with the
California Energy Commission, and I think the
result of that taken by all the parties, and

certainly I would maintain that states, in
fact, do not have legal authority to enforce
federal standards.

MR. BROOKMAN: I guess you've
gotten a rise out of Andrew first and then
we'll go to Don.

Let's try and make this brief
here.

MR. DELASKI: Yeah, I'll make it
real brief. I think we need to look at the
law. I think it was negotiated as part of
the regional standards compromise that states
could adopt a regional standard into the
building codes, but I'll look at the
language.

MR. BROOKMAN: That would be
helpful and supply that language to the
department. We're not going to put a fine
point on legal interpretation here today I
don't think.

Ted and then I'll come back to
MR. POPE: Ted Pope.

I'm not a lawyer, and I'm not sure PG&E's lawyers have looked at this in detail yet, but I think I want to make sure we're being clear. We agree that the statute says the lines are drawn on the state boundaries, but what I think we're suggesting now is that we'd like DOE to look at when it crafts the rules for state implementation and enforcement or compliance that there's an allowance for states to enforce the regional standard in some places and the base federal standard in others. I think that's what we're looking for and not trying to rewrite the federal law.

MR. BROOKMAN: Thank you.

Don.

MR. BRUNDAGE: I just want to make a point that for the hot, humid climate standard the driving force is not going go be degree days. It's going to be humidity.
What I would like to see out of a hot, humid standard is something that is a requirement that better meets the needs of hot, humid climates.

MR. BROOKMAN: And that would be?

MR. BRUNDAGE: Some to find a way to require better humidity control, and maybe it's as simple as going to CR-14, and that by default tends to get variable speed, which helps a lot, but there needs to be some way.

The most important criteria to us is to have equipment that works, not something that on paper is a little more efficient.

MR. BROOKMAN: Let me direct your attention, folks, if you would, to Item 1.5 and 1.6 on Slide 36. That's why I want to make sure I give you a final chance to comment should you have something additional that's not been said already.

Tom.

MR. ROBERTS: Just briefly, the
micro climate consideration in California is duplicated throughout the United States, and you'd have to address micro climates everywhere. For example, in Missouri, we have the Ozarks, a very hot, humid environment around a bunch of lakes. There contractors recommend and select different systems, and the consumers generally choose humidity control systems.

However, the answer to it, I think, is definitely not raising the SEER standard to 14 because no one is going ot get a variable speed, two stage product at 14 because we're all going to reengineer to the least common price point at 14.

So I think we mistake standards with choice, and the comment about systems in Phoenix and systems in Chicago, we don't design those the same way. The contractors don't select them and offer them the same way, and the consumers don't choose them the same way.
So there's already an awful lot of choice going on.

MR. BROOKMAN: Okay, Bill. Go ahead.

MR. McCULLOUGH: One item that I think is going to be very important to this, and it's really your Item 1-6, is who enforces these standards. We have customers that regard us -- I mean, I can't imagine that a regional standard with some region, there's not going to be a dealer or a customer or a contractor that's not going to wind up serving both areas.

So who enforces and looks at and verifies that that product installed meets that standard? And it becomes very complex even now, today. It's very confusing for consumers. With the energy guide label we say the unit is 13, and we install it with variable speed, and it may get 14, or we install a unit that it says for higher SEER it has to be installed with a variable speed,
but yet it doesn't.

So that's a key part of this, and who owns this, how is it going to be enforced, and what's the penalty for not following the law.

MR. BROOKMAN: Okay. So then a final comment from Talbot, but I do want to encourage all of you to make very detailed comments and submit them to the department because we're moving on.

MR. GEE: Right, and frankly, I think Harvey just wanted to kind of re-address the basic assumption here. We're kind of jumping ahead assuming that this region were this standard, this region were that standard.

I think there's still a question as to just simply raising the standard, be it federally or regionally. Does that directly lead to energy savings? I think there's a concern there because we've seen the increase in the repair business of existing systems.
So the assumption that this is all based on is that if you raise the standard you're automatically going to save energy, and we're not necessarily convinced that's true federally or regionally.

MR. BROOKMAN: Okay. Then on to 37.

MR. CHRISTOPHER: Okay. I'm going to try and go through these a little faster.

In engineering analysis, one of the things we do is we look at the manufacturing markup, and this is a way to convert the production cost that the tear-down analysis, the reverse engineering analysis develops to a manufacturer selling price, and that selling price is what goes forward to the down stream analyses where other markups are applied throughout the distribution channels.

So components of manufacturer production costs are listed and manufacturing markup as well. The way that DOE goes about
developing the markup is looking at perfectly available reports, such as SEC filings, company annual reports, and then some private reports.

In a minute I'm going to discuss the preliminary manufacturer impact analysis, and during those interviews DOE discussed this information with manufacturers to refine, clarify.

So DOE is looking for feedback on this planned approach for developing an estimate of the manufacturing markup.

MR. BROOKMAN: John Mandyck.

MR. MANDYCK: John Mandyck.

Where is transportation and warehousing accounted for in your analysis?

MR. CHRISTOPHER: Transportation as in freight?

MR. MANDYCK: Yes.

MR. CHRISTOPHER: That would be part of the distribution chain and the markups analysis. So that's a separate
analysis. This goes up through looking at
what the --

MR. MANDYCK: But the manufacturer
has to ship it to a warehouse and then
warehouse it, and there's an impact on that
from a standard chain. So if you have larger
units, we have to put more trucks on the road
and get bigger warehousing space before it
even leaves our premises to go to the next
step in the distribution chain.

So I'm wondering where that's
factored into your manufacturer impact
analysis.

MR. CHRISTOPHER: Okay. Well, I
can't comment as to whether that's
specifically included in the shipments
analysis. I don't know if it's going to be
addressed later today -- or the markups
analysis.

MR. ROSENQUIST: It's in the
manufacturing (speaking from an unmiked
location).
MR. BROOKMAN: So the comment was that it's in the manufacturer's markup.

MR. ROSENQUIST: In the production class.

MR. BROOKMAN: Please say your name again.

MR. ROSENQUIST: Greg Rosenquist, Laurence Berkeley.

MR. BROOKMAN: Greg Rosenquist.

Okay. We got it.

MR. MANDYCK: I guess a follow-on question. Was that included in the 13 SEER analysis? The impact of the standard on the transportation warehousing, was that included in the 13 SEER analysis?

MR. BROOKMAN: I'm not sure we know the answer to that question right now.

MR. DELASKI: We can get back to you on that.


MR. AMRANE: Karim Amrane, HRI.

It was not included. We made
those comments during the last rulemaking. We disagreed with the markups. Actually we provided you with markups, and in the end we opted not to use our numbers. So we had a lot of disagreement with the analysis that DOE did last time on the markups, and I'm hoping that this time you will listen a little bit more to the industry.


MR. McCRUDDEN: And I think if you can extrapolate those comments to beyond manufacturers, to the distributors and to the contractors, I've heard stories about my guys who had to buy trucklifts because the higher SEER products were so much bigger. They had to buy different trucks, and also have two people to make deliveries.

So it's not just going to be on the manufacturers, and I may be jumping ahead of myself on where this analysis is done,
but that's something that I think is also of concern.

MR. BROOKMAN: Final comments on markups. Tom.

MR. ROBERTS: Tom Roberts.

Not to jump ahead, but on the manufacturing side now that we have been through this a couple of times, the manufacturers have a much better idea as to obsolescence, obsolescence and work in process, obsolescence of finished goods, and transitional costs associated with change, such as loss of economies of scale in certain sizes.

I'd just like for those to be included since we all know retroactively now about what those are.

MR. BROOKMAN: So then the department would really like to see that information, you know. Make sure that's there for them.

Talbot.
MR. GEE: And does this -- Talbot Gee -- does this also include the indoor components that are required to achieve a certain given SEER level?

MR. CHRISTOPHER: Yes.

MR. GEE: It does?

MR. CHRISTOPHER: Yes.

MR. BROOKMAN: So then on to proprietary designs.

MR. CHRISTOPHER: So the department may encounter proprietary designs when it's looking at particular technologies that are used to increase efficiency, and it will evaluate those that are available in a working prototype.

However, proprietary designs that are the only path to a given efficiency level will not be considered, and that's to protect manufacturers that don't have access to those designs.

And any discussions of proprietary designs, of course, confidentiality will be
And Item 5A asks are there any proprietary designs that DOE should be aware of and, if so, how should DOE go about acquiring any cost data necessary to evaluate those designs?

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: I would just like to note the superficial irony of being willing to consider proprietary designs, but not the problem of well established Western tradition of water cooled evaporators.

MR. BROOKMAN: Other comments on proprietary designs?

Charlie, we didn't get that.

Pardon me.

MR. SACHS: I said it was on --

MR. BROOKMAN: Harvey, we didn't get it.

MR. SACHS: I'm sorry. I used the word "ironic," not "moronic."

(Laughter.)
MR. BROOKMAN: So I guess we'll let that one pass. Okay. So no comments, additional comments, on proprietary designs. Keep going.

MR. CHRISTOPHER: Yeah, thanks.

As part of the engineering we also looked at outside regulatory changes, and these are -- I guess the big example would be the phase-out of refrigerants, obviously the big one being R-22. Manufacturers are currently transitioning R-410A.

The ban on R-22 is beginning in early 2010, and because this falls before the final rule for this rulemaking, DOE's assumption is that manufacturers will be fully transitioned to some new refrigerant by the time standards become effective, and the clear alternative to R-22 at this point is R-410A.

DOE understands there are other issues here, such as the reduced availability of R-22 and the price, slightly increases in
prices. So DOE is looking for feedback on central impacts of reduced availability of R-22 and any other outside regulatory changes that DOE needs to consider.

MR. BROOKMAN: Perhaps we can consider these together. Hung first and then Lance.

MR. PHAM: I think we talk a little about R-22, but actually the concern is R-410A that we are trying to transition into. We are barely switching into it, and we already get faced with Lieberman bill and everything trying to phase it out again.

So I think those are the big factors that I think DOE needs to consider. Even the supply of the new refrigerant might be in question, let alone R-22.

MR. BROOKMAN: Thank you.

Lance.

MR. DELAURA: This isn't a refrigerant comment. It's a time of use rates comment, that we think it would be
appropriate in this section to have a comment
about that. We'll submit written comments.

MR. BROOKMAN: Okay. Okay. Thank
you.

Charlie.

MR. McCRUDDEN: Charlie McCrudden. I don't know the answer to this
question. So I'm curious. Is this
considered a major rule? And if so, does the
Small Business Administration chime in with
the impacts on small businesses and such?

MR. BROOKMAN: Mike Kiddo.

MR. KIDDO: Yeah, it's my
understanding that this would be a
significant rule.

MR. BROOKMAN: Louder, Mike.

MR. KIDDO: It's my understanding
that this is a significant rulemaking, and
with respect to the SBA, they may provide
some kind of comment, but that would probably
be during the NOPR process, not here.

MR. BROOKMAN: Fred.
MR. KELLER: Yes, just a comment.

The question 5.9 you have in your presentation is not the same as the question 5.9 --

MR. CHRISTOPHER: I understand.

MR. KELLER: -- in the framework document.

MR. CHRISTOPHER: Right, yeah.

MR. KELLER: Which refers to R-410A, not R-22.

MR. CHRISTOPHER: Right.

MR. ROBERTS: Tom Roberts.

It needs to be both.

MR. CHRISTOPHER: It should be both.

MR. ROBERTS: There's a transitional shortfall in the gap on 210 for 22, but definitely it will affect that.

MR. BROOKMAN: Thanks for that clarification. So then it should reflect both.

MR. CHRISTOPHER: Yes.
MR. BROOKMAN: Okay. Good.

Thanks. That's helpful.

Tom.

MR. CRAWFORD: Jim Crawford.

MR. BROOKMAN: Jim Crawford.

MR. CRAWFORD: I just wanted to underscore the fact that in his opening remarks Dr. Amrane provided some quantitative information on this availability issue for the HFC refrigerants. This is by far the most serious issue facing our industry, and the corresponding changes the most serious issue facing our society.

MR. BROOKMAN: Thank you.

Okay. Then let's --

MR. CHRISTOPHER: Let's move on.

MR. BROOKMAN: -- move on.

MR. CHRISTOPHER: So the fourth analysis that I'm speaking about today is the manufacturer impact analysis, and the MIA has three main phases.

The first phase is conducted for
the ANOPR and phases two and three are conducted for the NOPR, and in phase one DOE looks at conduct industry profile and conducts preliminary manufacturer impacts or -- sorry -- preliminary MIA interviews.

The industry profile is intended to evaluate the structure and market characteristics, and this has some overlap with the market technology assessment.

Produce an industry profile report with aggregated findings and characteristics and identifies any critical issues that require special consideration. Examples are types of subgroups of manufacturers, access to technology, potential regulatory scenarios.

And when DOE conducts MIA interviews, these occur during the engineering analysis and include topics such as shipments projections, conversion costs, cumulative regulatory burden, for example.

So we don't have any specific
items of feedback on the preliminary MIA, but at this point, Doug, do you want to? I'm ready to hand off to Sriram. I don't know if you want to.

MR. GILLEY: One clarifying question.

MR. BROOKMAN: Kyle, please.

MR. GILLEY: This says preliminary manufacturer impact analysis, but given that you're also looking at regional standards, it appears to me that this also should include everyone in the distribution channel. Some of these things apply to our friends in the distributor and contracting community, and they will incur a burden that needs to be analyzed in this rulemaking.

MR. BROOKMAN: Do you wish to respond?

MR. CHRISTOPHER: It's taken into consideration, but the idea of the analysis is to look at impacts on manufacturers.

MR. GILLEY: It's a flawed
analysis if you're looking at regional standards and you don't include everything in the distribution channel.

MR. BROOKMAN: Talbot.

MR. GEE: Well, and I actually hadn't brought up because I thought I had heard you say that there was a section -- I haven't peeked ahead -- a section on distribution impacts. If that's true, then just make sure that that point is expressly included.

MR. ROBERTS: Sorry, Talbot. This is Tom.

I did peek ahead, and that point is very well taken because the downstream portion is way over simplified, and you need to consider the total channel impact, meaning factory driveway to consumer driveway all the way through with the whole broad scope of the project to get an accurate --

MR. BROOKMAN: Since you peeked ahead, where is it about?
MR. ROBERTS: It's the distribution channel discussion.

MR. BROOKMAN: Okay. So let's make sure we land on that when we get there.

yes, Paul.

MR. DOPPEL: I'd like to recommend that you add some consideration to manufacturers who import product. There should be an impact analysis.

MR. BROOKMAN: So how would you suggest that gets addressed?

MR. DOPPEL: The time and cost it takes to bring products in. It's just talked about shipment and other types of things. So manufacturers who make overseas and then bring into the U.S. face some different issues.

MR. BROOKMAN: Pat.

MR. O'CONNOR: Pat O'Connor.

Could you give us a little bit of feedback as to what the rationale would be for not including the entire supply chain in
the manufacturer's impact analysis to help us focus our comments on the framework document?

MR. CHRISTOPHER: This is a question on the process of the rulemaking, and I don't know. You know, that's not a question that I'm prepared to answer.

MR. BROOKMAN: Okay. Then I'm going to suggest we move on to the next slide, and Sriram is our presenter.

MR. SOMASUNDARAM: Can you hear me now?

The next few steps of the analysis are the energy use analysis, the markups. We will get to that in the next step, and then the life cycle costs and payback period analyses are the next three analyses steps.

So in the energy use analysis, essentially this is the step where DOE determines the annual energy consumed by these equipment, and we then multiply that by the electricity price to get the energy cost or the annual operating cost of the equipment.
to feed into the life cycle cost and payback period analysis.

And we also are able to capture the energy savings potential of products with increased efficiencies in this step.

For households or for residential buildings, we propose to develop residential building samples or household samples from RECS data. RECS is the residential energy consumption survey data, and in terms of what the latest available source for RECS data is, it's the 2001 survey data that is available right now.

Unfortunately, the 2005 survey data may not be completed and available for our use at least in the ANOPR stages of the rulemaking. So we suspect that given that, we may have to use the RECS 2001 data.

Now, in combination with the RECS data, we will also be using the efficiency levels and the cost curves that the engineering analysis produces to develop the
annual energy use for these households.

To elaborate this a little further, I thought I'll show you a graphic representation of how we intend to capture the annual energy use from utility bill data that is available as part of the RECS survey. Combine that with the SEER of the stock equipment within the households.

We then scale the annual energy consumption of the household by the higher SEER levels that the engineering analysis would propose us to develop costs for. So we will have scaled up the unit energy consumption that is REC here for every efficiency level per household.

And that's the final figure in the right extreme box that we will use to assess the energy consumption of the unit, and this will be done for each product class, each representative unit of a product class.

So at this point I'd like to pause and say DOE seeks comments on this particular
methodology to be used. This is essentially the same methodology that was used for previous rulemaking. So there's nothing different about it, except for the date of the RECS data.

MR. BROOKMAN: I'll start with Lance and then go to Tom.

MR. DELAURA: Yeah, just a quick comment. The same comment that I made before, that the time of use rates are really going to be critical to use to do the appropriate calculation not only for California, but if there are any other parts of the country that have time of use to make sure that gets plugged into the analysis region specific.

MR. SOMASUNDARAM: And that will be addressed in a subsequent presentation.

MR. BROOKMAN: Thank you.

Tom.

MR. ROBERTS: Tom Roberts.

Am I correct in assuming that
you're going to look at savings potential versus 2001 actual data? Savings potential versus 2001 actual Census data?

MR. SOMASUNDARAM: I'm not sure what you're referring to, Census data.

MR. ROBERTS: Well, here's the point. The point is our products last an average of 17 years. We're using seven year old data. So the installed population is 40 percent replaced off of the data that we're looking at, referencing. So the potential for savings is a lot less than what it looks like if you're using 2001 baseline data.

MR. BROOKMAN: Jim.

MR. SOMASUNDARAM: If I understand your question correctly, what I meant to say way we will use the utility bill data from the 2001 survey that was completed by DOE/EIA, but will scale up the consumption for the efficiency levels that we'll be analyzing.

So we'll simply be saying that
whatever the SEER of the existing unit in the household is, we will assume that that has been scaled up to the SEER level that we are analyzing and hence what the energy consumption will be for that SEER of that equipment.

MR. ROBERTS: But do you understand my point, that since then about 30 to 40 percent of those units have been replaced.

MR. SOMASUNDARAM: That's correct.

MR. ROBERTS: And so the assumption is invalid.


MR. CRAWFORD: Jim Crawford.

I had a question. I notice in the framework document you make reference to the RECS, CBECS and the American housing survey. Do you have access to those in a level of detail deeper than what we do?

MR. SOMASUNDARAM: Yes. The RECS and CBECS, I believe we do have detailed
access to their survey data, but that's the one that may not be available for the 2005 survey data.

MR. CRAWFORD: I understand that, but my point is that it seems in the framework document that you make reference to some finer grain data than I think I have access to.

MR. SOMASUNDARAM: That's right.

MR. CRAWFORD: And that makes it very difficult for those around the table to try to shadow the analysis to see whether or not we concur.

MR. BROOKMAN: Harvey.

MR. SACHS: May we return to Slide 47 for just a second?

MR. SOMASUNDARAM: yes.

MR. SACHS: I'm concerned about the lower text in the left-hand bullet, SEER per household deduced from equipment age, et cetera. And my concern is that the energy used at high temperature bin hours is higher
in ways that SEER may not completely reflect.

MR. SOMASUNDARAM: That's correct.

MR. SACHS: And so I'm curious about the details. When you say SEER, are you assuming that equipment operates at high temperatures as estimated by SEER or are you actually looking at the degradation of performance as perhaps reflected by EER?

MR. SOMASUNDARAM: Neither of the above. We simply deduce the SEER number, the number, the SEER level of that piece of equipment in that household from the RECS survey results, and that will be based on the vintage data that they provide us.

There is no way of knowing exactly what equipment goes into which household.

MR. SACHS: But that seems to be assuming that the SEER rating, the back computed SEER rating with a piece of equipment in the central valley of California or in Mobile, Alabama is reflected by or related to in some significant way SEER, and
that goes to the heart of this question of regional standards.

MR. BROOKMAN: A follow-on and then I'm coming to you next.

PARTICIPANT: I think on a volume weighted basis it should all wash out because you're going to have --

MR. SOMASUNDARAM: These are just representative.

PARTICIPANT: -- some of those units that are going to be located in St. Louis, which is close to where your national average is. Some are located in Minnesota. Some of them are in a hot, dry climate.

So I think overall when you're using SEER and then looking at this big population of units, it should wash that.

MR. SOMASUNDARAM: yeah, we're only capturing the representative households. I don't want to get into details here, but it's a representative household for around the country. And then we'll do a population
weight for doing a state-by-state calculation
of the energy consumption. So it's all on a
national level. That's the SEER metric
that --

MR. BROOKMAN: Your name, please.
MR. WILKINS: I'm Robert Wilkins
with Danfoss.

I think your approach on the cost
analysis is good, assuming that you have all
of the factors from the manufacturers through
the distribution channel, and these
industries can help you with that.

However, keep in mind that about
one-third of the market for central air
conditioning is new housing, and this is
probably the appropriate analysis for that.
Two-thirds of the market approximately is
replacement, and that's where I'm missing a
point because those consumers have a choice,
and it creates an elasticity of demand, and
as we raise the cost of high efficiency
equipment to 13, 14, 15, 16, it becomes
increasingly attractive to replace that old compressor so that you have a unit at five, six, seven, eight, and we miss a huge opportunity to save energy when that occurs. And I would urge the department to look at that elasticity to see what happens to those consumers in two-thirds of the market that have a choice, that can repair that old, inefficient piece of equipment.

MR. BROOKMAN: Thank you.

Don.

MR. BRUNDAGE: A more subtle comment on the energy analysis approach, and I went back and looked at the TSD from 2001 on this. As best I can tell, and correct me if I'm wrong, the department is assuming that the SEER of a unit is the same from the time it is installed until the time perhaps 17 or 20 years later that it is scrapped and replaced, and there is no degradation of performance during that time.

Is that a correct assumption about
your analysis?

MR. SOMASUNDARAM: Yes. There's no way of capturing the degradation information at all.

MR. BRUNDAGE: It's not possible to know it accurately, but it does exist, and some sort of realistic assumption, even if it's a one percent per year degradation would be better than the overly optimistic implicit assumption that you have.

MR. AMRANE: Karim Amrane, HRI.

But, Don, the same is true when they forecast saving the future as well. DOE doesn't assume that the new standard will degrade over time.

So I think, you know, if you want to do it that way, you have to be consistent all the way.

MR. BRUNDAGE: Oh, I agree.

You're overstating the savings by not figuring the degradation.

MR. AMRANE: Yes.
MR. BROOKMAN: Talbot.

MR. GEE: I was curious as to what consideration is made for increases in building code improvement, envelope improvements that might affect sizing, equipment, obviously energy consumption. Therefore if you're basing it on, say, '01, I mean, there are significant changes that will happen between '01 and this rule.

MR. SOMASUNDARAM: Going forward, we're going to talk about shipment analysis and efficiency related shipments in a subsequent presentation. Greg will address that.

But going backward, there is, again, no way of knowing how the building has changed or how the usage has changed. So the only way we're going to account for that is by assuming that the SEER level is scaled up to the present analysis levels.

MR. BROOKMAN: Charlie.

MR. McCRUDDEN: Charlie McCrudden.
Do the life cycle costs and payback period analysis consider rebates, tax incentives and other things out there available to the consumer?

MR. SOMASUNDARAM: That's actually captured in a separate analysis at the NOPR stage called the regulatory or nonregulatory approaches to the regulation that we are looking out right now.

So options such as incentives and rebates and Energy Star kind of incentive programs, impacts of that are considered in that step.

MR. BROOKMAN: Jim. Final comments now on the DOE's proposed approach.

Jim.

MR. CRAWFORD: Jim Crawford.

I think that the point that Southern California Gas made is an important point, and I would urge the PNNL staff to have the right hand talk to the left hand because the international energy conversation
code center of expertise is PNNL, and they perhaps could give you reasonable estimates as to what is happening relative to load reduction on new construction as we go forward.

You know, we're talking about a period here that's the latter half of the next decade.

MR. SOMASUNDARAM: Absolutely, and some of the same people are involved.

MR. BROOKMAN: Don.

MR. BRUNDAGE: I would like to see just as a sensitivity analysis to run these numbers on what you get out of a new building, such as the 2010 IECC, because it seems like there's an awful lot of assumption of what happens when you stick in an old, inefficient building with some of the new changes in building code standards. Some comparison of what it would be for a very well insulated building would be useful.

MR. BROOKMAN: Let's press on to
rebound effect.

MR. SOMASUNDARAM: Yes. This step is referred to in several sections of the framework document if you noticed. The first time it occurs is in the energy use analysis, and essentially this is one of a statement that DOE will consider this effect in the determination of the annual energy consumption.

And for those of you who are not familiar with this effect, it essentially occurs when more efficient equipment is used more extensively. In other words, it's run longer or it's operated longer.

So the projected energy savings may not be realized in the analysis, and the literature out there that suggests that this rebound effect may vary all the way from zero to 50 percent for space cooling equipment, and therefore, we're asking you for comments that you might have on how DOE might consider the rebound effect in this step of the
A lot of utilities have run rebate programs for high efficiency air conditioners and heat pumps. I know what I'm going to do. I'm going to ask member companies if they run programs have they done some sort of load research analysis for those customers in house every couple of years before, couple of years after, if they've noticed rebound effect after the high efficiency equipment has been installed.

So hopefully there will be some data for you to look at to do your analysis.

MR. BROOKMAN: Thank you.

Other comments on rebound effect and how that might be anticipated, calculated?

Jim.

MR. CRAWFORD: I'm against the
opinion of some of us that that effect is so small it's not worth bothering to calculate. I'm facing putting in a new air conditioner, and I don't think it's going to change my criteria or my wife's criteria for the standard of comfort. I just don't see us changing the thermostat setting because we got a new unit.

MR. BROOKMAN: Other comments?

Okay.

MR. SOMASUNDARAM: There's ten percent of shipments of these equipment, the central air conditioners and heat pumps, that get installed in commercial buildings. That's the assumption that was used in the previous rulemaking for this product, that ten percent was the figure.

Here on this slide we're basically saying that if DOE decides to do a separate analysis for those ten percent of their shipments that get installed in commercial buildings, we intend to determine the energy
consumption, annual energy consumption, those buildings, using a whole building simulation approach and using a small office building prototype that has already been doubled up for some of our other work for DOE and conducting that simulation over different climate zones and using the CVEX data here to characterize the small office building prototype and then to determine the annual energy consumption from that, using the simulation approach.

So the questions on the next slide are essentially two questions. One is whether the ten percent number is still a pretty accurate estimate of the products that go into small commercial buildings, and the second question is what do you all think about the approach that we have proposed here for this particular analysis.

MR. BROOKMAN: Jim.

MR. CRAWFORD: The first observation is that if you're going to start
1 delving in this area, you need to separate
2 split systems from packaged goods. I think
3 you're going to find that there's a
4 significantly higher percentage of package
5 that will be in the commercial application
6 than you will for split systems.

    And you may find that there are
8 some classes of equipment that may be single
9 phase that you're not even considering, like
10 the package system with a strip heat or gas
11 heat in the package system.

   MR. BROOKMAN: Thank you.
13 Other comments on these two
14 questions, particularly the ten percent
15 estimate? No endorsement, no refute?
16 (No response.)
17 MR. BROOKMAN: Okay, and what
18 about the second item, 6-5?
19 MR. CRAWFORD: This gets back to
20 the question I asked earlier about whether or
21 not you're looking at information in greater
22 depth than we have available to us when we go
on the EIA Website. It's my use of that Website which is fairly frequent. They don't cut it very fine, and almost anything would fit in almost any of their classifications.

So if you've got a definition that you'd like us to evaluate, then write the definition down and we'll evaluate it.

MR. BROOKMAN: Okay.

MR. SOMASUNDARAM: Okay. So now we do come to the markups. This is the stage at which the economic information will be generated to go into the life cycle cost analysis. So the engineering analysis would give us the manufacturer's selling price. In other words, as the equipment leaves the dock of the manufacturer, that's the price that we have at this stage.

And at this step of the analysis is when we calculate the individual markups as the equipment goes through the distribution chain, through the wholesaler/distributor to a contractor and
eventually to a consumer. And so we do need to develop these data in order to get the total installed cost of the equipment, which goes into the life cycle cost analysis, and this slide basically says the data sources that we will be using to obtain some of these markups.

The next slide, shows the proposed distribution channels that we will be using for this particular analysis. As you can see, the Channel 1 goes through the steps of manufacturer, distributor to a dealer or contractor and eventually to a customer.

Channel 2 is slightly different in the sense that the dealer-contractor is replaced by a builder, a spec builder or a custom builder that interfaces with the wholesaler of the equipment and sells it or installs it in the house for the customer to use.

The third channel is unique in the sense that it goes directly from the
manufacturer to a large retailer, as in Sears or Home Depot, and the customer basically has the store install it in their households, and so it's a shorter step to getting to the product.

MR. BROOKMAN: Tom.

MR. ROBERTS: Yeah, Tom Roberts.

I think if you apply the Slide 43 to this slide and you really understood how the market works, and if you sort of change Slide 43 from manufacturer impact analysis to market impact analysis, you know that distribution Channel 3 virtually doesn't exist. It's meaningless really, and distribution Channel 2, at least the way you portray it -- now, there's something that looks like that, but it has all the same functions as distribution Channel 1, and distribution Channel 2 actually looks kind of like distribution Channel 2, but it really is distribution Channel 1 again.

So if you did Slide 43 and really
understand the way our whole distribution channel works, you'll see that there's just a need for one model for the most part, and it will give you much better, accurate costs.

MR. BROOKMAN: Okay. Thank you.

Other comments on these distribution channels? Yes, Pat.

MR. O'CONNOR: Pat O'Connor.

I agree with what you said about that there's probably just one distribution channel if you drilled down into it, but that being said, this slide assumes that there's one national supply chain distribution channel because there's a national standard.

I think DOE has to look at the geographical distinctions that will be added to the distribution channel with regional standards. When I say "geographical," you may have a distributor in Richmond who is distributing product to contractors in a number of different states. Why? Because Richmond is on the axis of I-64 and I-95.
So you really have to factor in the geographical distinctions of regional standards, and in the slide before that when you said the DOE will characterize distribution channels, we will certainly submit written comments as to how you should characterize those distribution channels, but we would hope that we would be invited in, whoever would like to, would be invited in to sit down with you and talk through the distribution channels because otherwise you may not understand our written comments, and I think a sit-down session would be much more productive because, again, the distribution channel is going to be distorted because of the regional standards.

MR. SOMASUNDARAM: Two responses. One is the characterization of the distribution channels is what would be kind of described here as a kind of proposal, proposed picture that DOE has presently. The regional differences comment
is very appropriate because that's the last question of Item 7-1, in fact. Are there any regional differences in the distribution channels? And we would very much like to hear if there are differences and what they are.

And going back to the previous comment, I was going to say that, in fact, we would, if you would look at Item 7-2, we, in fact, ask for specific fractions of shipments that occur through each of the three channels described earlier. In other words, if you think that most of the shipments occurred through Channel 1, then we want you to comment on that, and not so much through three or vice versa.

MR. BROOKMAN: Go ahead, Pat. Keep going.

MR. O'CONNOR: Yeah, to follow up on that, I think first we need an agreement between industry and DOE as to what the distribution channel is. If we disagree that
there are three different distribution channels, then it's kind of senseless for us to try to tell you what percent of product flows in which one of those channels.

We have to come to some agreement or agree to disagree before we really can help you identify what's coming through the channel.

MR. BROOKMAN: Okay. Tom.

MR. ROBERTS: He said it.

MR. BROOKMAN: Okay. Talbot.

MR. GEE: Well, and I think I'd expand on our dear distributor colleague across the table that I think this needs to be two separate analyses basically. Frankly, there is the one based on the single national standard, and then, frankly, a whole different analysis on a regionalize standard. They're really apples and oranges, the type of analysis.

And, frankly, I think our opinion looking back, and it's our own fault for not
having been engaged more in the front end the last time, but this whole segment has been under characterized in the national discussion. So I don't know if we can even get past a national discussion to a regional discussion until this part is done.

The second part to it is there's varying models within distribution that, you know, I mean, I think there are worthy discussions about central distribution systems versus localized distribution systems, which I mean, that of itself could be a discussion that could go for a very, very long time.

MR. BROOKMAN: Harvey.

MR. SACHS: Two observations. One of them is that this proposal misses two distribution channels that have been mentioned today. One of them is the dealer direct model used by at least one of the major manufacturers which rolls up the distribution and manufacturing, and the other
is the import model.

And given that and the difficulties of this analysis, the question comes whether cutting straight to the chase of looking at a retail price survey, which is a difficult thing because of the way different contractors price the markup on the equipment versus the installation, but looking strictly at the retail and perhaps the manufacturer costs, the manufacturer's free on board price and not worrying about the details and what happens within the distribution network might be adequate, might allow us to more easily look at the regional questions, and might be more honest. Don't know, but it is a question that I would like to raise.

MR. BROOKMAN: Tom.

MR. ROBERTS: I completely disagree with that. You might as well use $335.

MR. SACHS: It's okay with me.
MR. ROBERTS: It's the essence of the whole thing, and until you get into the texture of it, the two models you just mentioned, importing, for example, primarily goes through the same distributor-contractor thing, and to my worthy brand competitor who operates the one-step thing, he has the same buildings with the same people driving fork lifts. The functionality is all the same.

So until you get into a full understanding of the market impact analysis, you don't accurately get a good idea of the cost and so your whole payback analysis is flawed.

MR. SACHS: Let me just follow that if I might with a question, and it will put you on the spot a little bit.

MR. ROBERTS: Perfect.

MR. SACHS: You believe DOE is capable of carrying out the analysis you requested.

MR. ROBERTS: I couldn't hear that
question.

MR. SACHS: You believe that DOE is capable of carrying out the analysis you've requested.

MR. ROBERTS: Oh, yes, I do, with our help because we would offer -- I can honestly say this -- we look forward to offering or providing a benchmark for you to check against, a series of chain -- of distribution markup multipliers that you could check your results from.

MR. BROOKMAN: -- in that you can provide the beginnings of those comments in writing, and then DOE certainly will follow up with you to get a more complete understand.

Yes, Jim.

MR. CRAWFORD: I don't know whether I'm close to an understanding or not. Certainly I think everybody in the room who is in the industry agrees with the comments that are coming from the distributors here
about there being basically one model, and it
would be kind of nice to hear DOE say that
they at least think that that might be
possible and might be right so that we know
where we're going.

Because until we know that, as was
just pointed out, we're looking at a chart
that's got three months and there aren't
three.

MR. BROOKMAN: Yeah.

MR. CRAWFORD: And we can spend
the rest of the day talking about why there
aren't three.

MR. BROOKMAN: No need to do that.
I think we've covered it adequately here.

Go ahead, Talbot.

MR. GEE: Well, and I want to
reinforce Pat's statement, too, that I don't
think we can accomplish this solely by
written comment alone.

MR. BROOKMAN: Yeah, right. No, I
think that DOE acknowledges that and
appreciates your willingness to sit down with them, discuss this, find a way to get enough information for them to have an accurate representation of the primary distribution chain.

MR. GEE: You can even include the single step guys.

MR. BROOKMAN: Yeah, okay. So then I'm going to suggest we move on.

MR. SOMASUNDARAM: Okay. One other I forgot to mention was somebody mentioned U.S.' replacement products. That, again, is as we understand a different market. We need to develop markups and distribution channels for not only the new products, but also replacement products. So that's where probably the chain stores come in to Channel 3.

MR. GILLEY: I didn't understand what you just said.

MR. SOMASUNDARAM: Where the customer goes to purchase a replacement
product, it may be a different way of getting
their product.

MR. GILLEY: That customer still
goes through a dealer.

PARTICIPANT: Yeah, and a
wholesalers.

MR. GILLEY: That customer may
physically go into a retailer outlet, but
that dealer still makes a home visit for
himself.

MR. SOMASUNDARAM: No, they don't.

MR. BROOKMAN: Because of the
installation requirement and all of that.

MR. ROBERTS: But they do.

MR. GILLEY: Yes, they do. That's
the business model. Yes, they do.

MR. ROBERTS: There's a
misunderstanding there. That serves as the
place where you can walk in and meet someone
who will come out to your place, but there is
no place where you can go buy a retail
replacement system. I mean, it looks like
it. It would seem that you're going into the
dbig orange store and buying an air
conditioner, but actually the people come out
in blue trucks.

    MR. CRAWFORD: And I know who --
Jim Crawford -- I know who supplies them.

    (Laughter.)

    MR. CRAWFORD: The orange door,
and what he's saying is right.

    MR. BROOKMAN: Okay. John
Mandyck, go ahead.

    MR. MANDYCK: This is John Mandyck
from Carrier.

    I know the outfit that supplies
Sears, and it's the same model.

    (Laughter.)

    MR. BROOKMAN: Okay. I'm glad
we've got some people that know some things
in this room. That's good. Okay.

    MR. SOMASUNDARAM: And there were
two more questions of use of baseline
incremental markups. The difference between
the two is the baseline markup applies to the baseline efficiency equipment, and to that we apply and to the higher efficiency equipment we apply what's called incremental markup. In other words, what is a cost markup for higher efficiency equipment beyond baseline efficiency?

And so any comments, written, pertaining to these questions are welcome.

MR. BROOKMAN: Yes, Talbot.

MR. GEE: I just suggest we may find that those aren't exactly increment.

MR. SOMASUNDARAM: Pardon?

MR. GEE: As you go up in efficiency levels.

MR. SOMASUNDARAM: Right. They're not incremental. That's right.

MR. BROOKMAN: Okay.

MR. SOMASUNDARAM: So can I go into life cycle cost and payback period analysis?

MR. BROOKMAN: Yes.
MR. SOMASUNDARAM: Okay. This particular step, again, assesses in a spreadsheet format. We calculate what life cycle cost of having the equipment installed as well as operating the equipment over the year is, and we determine this based on several inputs and we're going to talk about each of the inputs separately during the course of the next five or six slides.

But as part of the LCC analysis, we also report a simple payback in the number of years it takes to pay back the investment. The general approach is to use a Monte Carlo type stochastic analysis to consider not only variability in the input variables but also to look at different scenarios of the input variables.

And for each product class we will develop one analysis spreadsheet in the workbook in the Excel format.

This particular graphic illustrates the various inputs that go into
this particular analysis. This is ultimately the economic impact analysis. Having gone through the process of the engineering and the energy use used by the equipment, we ultimately have to determine whether the standard is economically justified, and this is one of the ways of doing that.

And as you can see in this graphic, there are inputs all the way from engineering analysis, which gave us the manufacturer's selling price to which the markups are multiplied including sales tax to get to an equivalent price to the customer.

We also develop the installation cost as an input to the LCC analysis, which we then obtain the total installed cost of the equipment.

From the bottom half of the figure we obtained the energy consumption multiplied by the electricity price to get the annual energy expense or operating expense of the equipment, to which we input the repair and
maintenance cost to get the annual operating
discount rate and future electricity and
future electricity price trends or
projections of how the electricity prices
might change over the analysis period are
future inputs to the LCC analysis, which
then gives us the lifetime operating expense
that we have to use for the LCC analysis.
And each of the steps, each of the
discussion boxes that are on the right side of
the diagram we will explain individually.
And now I'll call upon Greg
Rosenquist to talk about electricity price
and discount rate assumptions.

MR. ROSENQUIST: Okay. Thank you,
Sriram.

I'm Greg Rosenquist from Lawrence
Berkeley National Laboratory. I'll be
talking about two of the inputs to the LCC
and payback period analysis, and that's the
electricity prices and the discount rates.
I'll first be starting with the electricity
prices.

They are used to convert the
energy consumption data from the energy use
analysis into energy costs, and DOE intends
to use marginal electricity prices in this
analysis to come up with the energy cost
savings. The marginal price is the price
paid by the customer for the last kilowatt
hour of electricity purchased.

For residential electricity
prices, because typically, now, typically
they consist only of energy use charges and
not demand charges or time of use rates.
Simpler methods can be used which are
sufficiently accurate for developing marginal
prices. The department proposes two
approaches for doing this based upon two
different data sources.

One is the residential energy
consumption survey, or RECS. It provides
utility bill data by households. So you can
plot the monthly bill data against monthly
consumption data, fit a line to those points,
which actually you'd be surprised. On a
household basis that linear fit is pretty
good, and that slope is the marginal price
for that particular household.

Again, the problem with it, as
Sriram has pointed out earlier, is that all
we have is RECS 2001 data at this point, and
if the RECS 2005 isn't available, that means
if DOE decides to go forward with the RECS
data, we'll be dealing with seven year old
data.

The other option is to use data
from the Edison Electric Institute. EEI
produces typical summer and winter reports
where they produce monthly bills for
residential, commercial, and industrial
customers. And for residential customers,
their usage or their bills are provided at
three different usage levels for
approximately 180 different utilities.

So a marginal price can be deduced between the two consumption levels. The most recent data is from 2007, and so the benefit of using this data is that it's very recent.

Another alternative, of course, is to take the 2007 data and to scale up the data from RECS 2001, and the advantage to that is we can keep things at the household level.

MR. BROOKMAN: You had a comment now. Steve Rosenstock.


By all means feel free to use the EEI data. It's publicly available data, and it's published. We do it twice a year, the summer and then the wintertime. So as you go through the analysis the data will be updated basically annually in terms of the summer usage.

I just wanted to say one caveat
though is that the EI data only covers, as far as I know, just the investor owned utility segment of the marketplace. So that's covering, let's say, about 72 percent of the population. Our data does not include that information for municipals and co-ops. So, again, it's covering 70 percent. It's not covering 100 percent. The RECS data might be more representative of 100 percent of the data that's out there. So my suggestion, use the EI data as you wish as a supplement, not as the only data set I would suggest.

Thank you.

MR. BROOKMAN: Thank you. thank you very much.

Yes, Gary.

MR. CRAWFORD: Jim Crawford.

Two points. One is the when you are considering regional standards, I don't see how you can do that without considering much more fine grained utility cost
structure. I mean, the national average figure is useless.

The second point that I would make is that I think that if DOE, if the right hand would talk to the left hand, EIA publishes costs, I believe, on a monthly basis. So you don't have to go back to 2001. You may have to go back to 2001 for an estimate of use, but you don't have to go back to 2001 for the price.

MR. ROSENQUIST: Can I make a comment about that data? That data provides sales and usage by utility. So you can deduce an average electricity price from that data, but you can't derive a marginal price from it.

MR. CRAWFORD: Well, you know, back in the dark ages when we did this before, there was a massive analysis undertaken by a noted West Coast laboratory comparing marginal prices and average prices, and I seem to recall that after 20 man-years
of work, you came to the conclusion that there wasn't a heck of a lot of difference.

And within the precision of this whole process that we're talking about, the difference is insignificant.

MR. BROOKMAN: So Gary.

MR. FERNSTROM: Well, when we consider regional standards, it seems to me imperative that we use regional prices, and at least for our utility, PG&E, there is quite a bit of difference between the marginal cost and the average cost. This is because of the current tiered rate structure, and for that matter, as Lance has pointed out several times, the time of use cost behind that rate structure and the movement in California toward time dependent pricing.

I don't think your methodology for determining marginal price necessarily works, given our rate structure.

MR. DELAURA: Can I just add on something?
MR. BROOKMAN: Lance, please do.
And if you can suggest the way that this gets
fixed, that would be helpful.

MR. DELAURA: Just to add onto
what Gary said, in California certainly
within the time frame of this rulemaking,
when the rule actually goes into effect,
there will be time of use rates for
customers, and so this notion of the marginal
rate for a customer is going to be very
different, and the value of energy is going
to be treated very differently.

And so I guess this all goes back
to the regions. If we know there's going to
be a specific region that's considered, at
least, if not adopted, and California happens
to be a part of that, then I think what we
can do is we can have our rate design people
and certainly people from the California
Energy Commission would be happy to work with
you in doing that specific potential regions
analysis.
But I agree with Gary completely that to assume that we're going to take an average of a marginal cost and assume that's reflective of California is absolutely incorrect.

MR. ROSENQUIST: Can I make a couple of comments in response?

MR. BROOKMAN: Go ahead. Please do.

MR. ROSENQUIST: First Jim's. We've looked at that EEI data from 2007, and you're exactly right. The average prices actually for every region, every Census division in a large state, with one of the large states being California, the average price is greater than the marginal price.

In California though, the marginal price is significantly greater than the average price. So it would be interesting to see, and once the time of use rates do come out, whether that current difference that we're seeing in California with the current
rate structure basically reflects what would happen under a TOU rate structure.

MR. BROOKMAN: Yes, please.

MR. WILKINS: Robert Wilkins with Danfoss.

I am a little concerned about using the average of 180 or 200 utilities, the marginal cost of 180 or 200 utilities. From my own experience a few years ago in the electric utility industry I saw there's a wide variation in rates from low to high.

So I would urge you if you look at that average -- I'll just pull a number out, ten cents per kilowatt hour, 12, whatever it is now -- also do a test to see what effect your decision would have on those that were actually paying six cents per kilowatt hour or those that were paying 15 cents per kilowatt hour, and take that into consideration as a sensitivity analysis.

Now, in fact, the consumer who's paying that higher rate has the ability to
choose. He can always buy a more efficient piece of equipment. That consumer that's paying the six cents and might not be able to justify whatever is justifiable at the national average, we don't leave him any choice. So he gets penalized.

And I just urge the department to look at that on a sensitivity analysis basis.

MR. ROSENQUIST: Can I just respond to that real quickly?

A point of clarification. On the EI data, again, we can develop a marginal price for each one of those 180 utilities, and so when I said that the EI data shows that the average price is greater than the marginal price everywhere except California, what I'm saying is that we've aggregated the prices for all of those utilities in the particular regions based upon the number of customers that they serve.

So we can reduce that back down to the utility level.
MR. WILKINS: But I'm not speaking

of the average versus the marginal cost. I'm

speaking of the average of the average across

the 180 utilities, that we're basing the

whole thing base on that one number, which

is, let's say, to illustrate ten cents per

kilowatt hour, but there are millions of

Americans that are paying 15 to 18, and there

are also millions that are paying five and

six.

MR. BROOKMAN: Steve Rosenstock.

MR. WILKINS: And we'll be able to
test that.

MR. BROOKMAN: Okay. Or John. Go
ahead, John.

MR. MANDYCK: I think to some
extent we're losing perspective on this.

This is a rule that doesn't go into effect
until 2016, and when you figure getting

enough of the product on the market subject
to the new rule to have much impact, you're
talking the biggest effect is 2020 and later.
You can make some broad assumptions based on EIA forecasts of what overall electricity or gas prices will be then, which will be wrong, but we'll at least have some quasi-logical basis on which they came up with it.

But the difference between marginal and average price is subject to things like whether you're in a dereg market or a regulated market, the regulatory whims and fads of the day, and we are talking about things that are 14 or 15 years from now.

It's also speculative. There's more important parts of the analysis to spend a lot of time on.

Thank you.

MR. BROOKMAN: Thank you.

Final comment, Steve Rosenstock.

MR. ROSENSTOCK: Just, again, just in terms of trends, I think, you know, there was talking about time dependent and time of use, and there are several utilities that are
dealing with residential customers I'll say
deal ahead real time pricing and critical
peak pricing.

What the future rates are going to
be, it's anybody's guess when you get right
down to it, and I'm not trying to complicate
the analysis. I'm just saying that if you're
trying to incorporate it, what you have to do
is incorporate what I call rate chaos
because, you know, there are some years
during the summer a residential customer
might be paying as much as, you know, during
a, quote, peak hour, as much as 50 cents a
kilowatt hour, but the next summer even if
it's hotter, they might only be paying ten
cents a kilowatt hour because of different
supply conditions or they've cut back.

And on the other hand, as well, is
that customers do respond such that that
could change the consumption patterns quite
dramatically as well. So you know, all of
these things could make it quite a bit more
difficult, but let's try to use as good data as we have.

MR. BROOKMAN: Did you cover the slide on commercial?

MR. ROSENQUIST: Not yet.

MR. BROOKMAN: Yeah, go ahead, Gary. Go ahead.

MR. FERNSTROM: Gary Fernstrom. One quick, last comment. You asked for recommendations. California uses time dependent valuation. That assigns a marginal cost to a kilowatt hour in a particular climate region for every hour of the year, and that would be a good methodology for getting at this for California anyway.

MR. BROOKMAN: thank you.

I want to see Slide 62, commercial electricity prices, and then I want to ask you after he's reviewed this and you've commented whether you want to take a break or not.
go ahead.

MR. ROSENQUIST: Okay. In the event that we do airlines, the commercial applications of central air conditioners and heat pumps, and it seems like we will be, we're going to have to develop commercial electricity prices, and the commercial electricity prices are at least today much more complex than residential prices. They include demand charges, and typically a lot of tariffs these days characterize those demand charges as what I call hours charges, where the energy use charges are a function of the customer's demand.

In any case, we can use electric utility tariffs to characterize marginal electricity prices, and all the tariff is is just the sort of rules that utilities use to calculate the customer bills.

In coming up with the marginal price, we determined the bills associated at, let's say, a particular baseline level and
then standard level, and then we come up with
the marginal cost savings, and those are
calculated by taking the marginal energy
price and multiplying it by the energy
savings, then adding the demand charges times
the demand reduction.

Now, this relationship between
marginal cost savings and marginal energy
price, demand price, energy savings and
demand savings have all been rolled up into a
relationship for two prior DOE standards
rulemakings, one on commercial unitary
conditioners and one on distribution
transformers.

And what it does is it rolled up
the demand charges and energy charges into
what's called an effective marginal price,
which is a function of what's called a
marginal load factor. The marginal load
factor, which is a value between zero and
one, represents the demand savings from the
particular efficiency measure to the average
energy savings.

So for an end use like air conditioning, which is relatively peaky, the value is like between 0.1 to 0.3. In other words, it means that the demand charges represent more of the cost of the bill than the energy charges, and since demand charges are more costly, that means that the relative marginal energy price is much higher or significantly higher than the average electricity price.

So this relationship has been built upon 2004 tariffs, and we can go ahead and use this in the central AC analysis, assuming that prices haven't changed significantly since then.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI.

I've looked at the analysis, and I've learned to live with it basically. I'm not exactly totally convinced about it, but
one thing I want to say especially for this rulemaking, and again, it was discussed earlier -- forgive me if I was out -- in the last analysis when there's a nice correlation between SEER and EER both going up at the same time, I don't have a problem with it.

But now, based on what I've heard and what I've seen where there's a disconnect between SEER and EER as you get up the SEER chain above 14, 15, et cetera, there is a possibility, a very high possibility if, depending on your modeling, if you say the EER stays flat or decreases as you increase the SEER. It's not marginal demand savings. It's marginal demand costs to the customer.

You have energy savings. You have energy costs go down, but demand costs go up, and I believe that, again, it depends on how you model and what the availability of the equipment is out there, but in the commercial side it's very easy to get energy savings at demand costs by doing this.
Thank you.

MR. BROOKMAN: Thank you.

MR. ROSENQUIST: And the commercial electricity prices would reflect that. If there wasn't a reduction in demand from a particular SEER level, again, that would be reflected in the commercial prices.

MR. ROSENSTOCK: And if there was an increase in demand, would that also be --

MR. ROSENQUIST: Yes, certainly.

MR. ROSENSTOCK: Okay.

MR. BROOKMAN: Let me ask the presenters, Wes and Sriram and Greg. We have at least another hour at this pace, right, before we're concluded? I'm going to suggest we take a short break, and the coffee shop is now closed. However, downstairs on the opposite side of the hall there are a whole bunch of Coke machines, soft drink machines. Okay?

So let's try just for ten minutes so as best we can, which means we're going to
resume at about 3:25.

(Whereupon, the foregoing matter went off the record at 3:16 p.m.
and went back on the record at 3:26 p.m.)

MR. BROOKMAN: So Greg is back on.

Let's stay focused here if we can.

Okay. Go.

MR. ROSENQUIST: Okay. I'm going to move on to the price forecasts. So after we've developed marginal electricity prices for a specific year, then issue then is how do you forecast that out into the future, and the way DOE plans to do that is by using the Energy Information Administration's annual energy outlook.

And the AEO has several price projections, but what's typically used in these analyses are the reference case and the high and low growth economic cases.

So at this point I'll stop and see if you have any comments on using the AEO to
forecast a marginal price out into the future.

MR. BROOKMAN: Ted, and what the supplements or replacements might be. Ted.

MR. POPE: I don't know what year AEO that you're using, but I think it was 2007 I looked at last, and I may have looked at it wrong, but it looked to me like that forecast showed electricity in real terms not coming back to the cost of 2006 until several -- a decade and a half or two decades in the future, and that just struck a lot of us in California as a fairly improbably outlook, given the probability of cap in trade in that sort of policy framework in the future.

MR. BROOKMAN: Thank you.

MR. SACHS: Havey Sachs, ACEEE.

Given the historical record of the EIA forecasts, I've come to the conclusion that there are others who ought to have their votes weighed as well. There are a number of private sector forecasts. EIA has been
consistently low for the last five years or so, and we would recommend that the department pay attention to forecasts from other nationally acknowledged organizations.

MR. BROOKMAN: Thanks, Harvey.

Other comments? Because I'm eager for us to keep moving rapidly.

(No response.)

MR. BROOKMAN: We're moving ahead then.

MR. ROSENQUIST: Okay. The next input is the life cycle cost and payback period analysis that I'll discuss is the discount rate, and discount rates are used to convert streams of annual cost savings to a present value.

And for residential discount rates, the plan is to use a similar approach to what's used for most fairly recent residential product rulemakings that DOE has conducted. It's based upon deriving estimates of the finance cost of purchasing
the appliance, and that finance cost is based
upon one of two things, either the cost of
debt that's used to purchase the appliance or
the opportunity cost associated with equity
that can be pulled from things like savings
accounts and money market funds to purchase
the appliance.

The Federal Reserve Board's survey
of consumer finances has most of the data
that allows DOE to calculate, again, the
discount rates associated with the equity and
debt that's used to purchase these products.

Again, assuming we're going to be
doing commercial applications on this
product, we'll have to come up with
commercial discount rates, and again, the
plan is to use a purchase that had been used
in prior DOE rulemakings, specifically to use
this technique called the weighted average
cost of capital, and what that does is
determined the equity in debt that firms that
purchased this product use to finance the
purchase of acquiring the particular product.

MR. BROOKMAN: So comments on this means of estimating discount rates. Steve first.

MR. ROSENSTOCK: Steve Rosenstock, EEI.

Just for that last part in terms of weighted average cost of capital, for the last rulemaking, was that basically just for small businesses that most likely are the same entities that are likely to use this product rather than all small versus including weighting in the Wal-Marts and the large entities that are going to have lower costs of capital?

MR. ROSENUST: The attempt will be made to try to specifically identify the types of firms that buy these products. So they could be small firms, and they could be the large firms that you're talking about like Wal-Mart.

Granted we're going to try to be
somewhat consistent with what's being done in
the energy use analysis where there a small
office prototype is being used to
categorize the type of buildings that are
using this product.

MR. ROSENSTOCK: I was going to
say the Wal-Marts aren't going to use these
products.

MR. ROSENQUIST: Right.

MR. ROSENSTOCK: So if you can
discount those out of your calculation.

MR. BROOKMAN: Tom and then Jim.

MR. ROBERTS: Quickly, if you're
going to use the incremental, if you're
trying to be consistent with your energy use
and use incremental, last unit numbers, why
don't you do that with credit? Why aren't
you using the incremental rate to the
consumer?

MR. ROSENQUIST: Simply because
we just don't have enough data to indicate
what the last type of debt or equity based
vehicle that consumers used to purchase the product.

So instead we just look at the full breadth of debt and equity holdings that they have to figure out a distribution.

MR. BROOKMAN: Jim.

MR. CRAWFORD: Well, I'm going to have to record this myself so that I can play it back each meeting. The average consumer debt is what, somewhere now around $8,000, per capita that is carried on short-term credit? That means that we do know the marginal rate. The marginal rate is the price of plastic, and that's what is going to be the cost of this whether they buy it on plastic or whether they buy something else on plastic and use some other resource for this. The cost for these purchases is the price of plastic.

MR. BROOKMAN: Ted.

MR. POPE: I'm trying to recall.

Greg do you -- Ted Pope -- do you factor in
default rates on credit cards as a negative interest rate when you're calculating credit card interest rates and in your factor?

MR. ROSENQUIST: No, we don't.

MR. POPE: Then we would recommend you consider that.

MR. BROOKMAN: Thank you.

Are there comments on these methods? And also other comments related to discount rates.

(No response.)

MR. BROOKMAN: Okay.

MR. ROSENQUIST: Okay. I'm going to turn it over now to Sriram to talk about the rest of the inputs to the LCC analysis.

MR. SOMASUNDARAM: Two other inputs to the LCC analysis. The first is the maintenance repair.

Now, the two bullets are the assumptions we are proposing to make, and that is DOE believes that routine repair and maintenance costs may increase with more
efficient equipment simply because it may 
incorporate technologies that are not 
currently available and, therefore, may 
require a more sophisticated maintenance 
routine to account for that.

And the second assumption is that 
installation costs we assume are not going to 
change because of higher efficiency 
equipment, and so on what are those 
asumptions DOE seeks feedback? Whether it 
is correct to assume that changes in 
maintenance repair costs are warranted and 
whether we can assume that the installation 
costs would remain the same with high 
efficiency equipment.

MR. BROOKMAN: Yes, Karim.

MR. AMRANE: Karim Amrane, HRI.

Well, you seek feedback on that at 
the last rulemaking, and we provided comments 
to you, and we disagree with this assumption, 
and you opted to again reject our comments. 
So we disagree. Those installation costs
will increase with bigger units just because
of the fact that transportation will increase
and things like that.

So, again, we've made those comments, but you've decided last time to ignore them. So hopefully we'll make those comments again and this time you will accept them.

MR. BROOKMAN: Thank you.

Harvey.

MR. SACHS: Karim, be prepared.

I'm going to largely agree with you.

(Laughter.)

MR. BROOKMAN: There was a qualifier in that statement.

MR. SACHS: For those manufacturers who are not adopting micro channel heat exchangers, but on the other side of this, it's not clear whether the new technologies will lead to higher maintenance costs when those new technologies look to us, from reading the literature and talking to
manufacturers, include a great deal of foregone advanced diagnostics and automated diagnostics. That should lead to smarter machinery that will be to some extend self-correcting and to some extent will notify the maintenance technician what to bring and what to do.

So it's not at all clear that you might not have it backwards.

MR. BROOKMAN: Talbot.

MR. GEE: I think just a noticeable difference would probably between the last rulemaking and this one when it comes to maintenance cost could be the potential price of refrigerant, especially when you're talking the higher efficiencies that require larger charge sizes and potential scenarios where that refrigerant could possibly even exceed the value of the warranty on the product.

MR. BROOKMAN: Gary.

MR. FERNSTROM: Gary Fernstrom.
So the higher efficiency equipment we've found, anyway, tends to maintain its actual field performance better over a range of charge, and it would seem to me that as the equipment may lose charge, it may continue to perform fairly well, which would tend to reduce the cost of maintenance.

So I think there are indicators going both ways with respect to the cost of maintenance.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI.

MR. BROOKMAN: Well, wait, wait.

Gary, so how do they address that?

If it's going both ways, how does the department approach that?

MR. FERNSTROM: I don't know that I have a specific recommendation other than we think to the maximum extent possible DOE ought to consider field performance issues in its investigation.
MR. BROOKMAN: Does California have that data?

MR. FERNSTROM: We do have data on that. John Proctor and others have done extensive study on the state of charge and the opportunity associated with maintenance in the field.

MR. BROOKMAN: So you'll send us that?

MR. FERNSTROM: So we'll be submitting it.

MR. BROOKMAN: Thank you.

Steve.

MR. ROSENSTOCK: Steve Rosenstock EEI. I know this came up last time, but especially the size issue and space constrained areas, especially in multi-family buildings where HVAC equipment and water are shoved in the smallest closet possible. So if you need to retrofit and there's a bigger size, then the installation costs, you know,
there is a dramatic -- you almost have to
build a new closet.

I'm not an expert. We have
experts here. Hopefully they can provide
information to the department about what
about those retrofit cases going from ten to
13 or 14 in space constrained areas. What
kind of impact was it on the installation
costs? Hopefully they can provide
information to DOE because that will be good
data.

MR. BROOKMAN: Charlie.

MR. McCRUDDEN: Yeah, and we do
plan on providing that data.

My question, not a comment, but a
question. On the two bullet points you have
there, is there a place where you lay out
your assumptions or describe your assumptions
so that they can be commented on?

MR. SOMASUNDARAM: We will when we
present the ANOPR analysis.

MR. McCRUDDEN: That will layout
the assumptions that you're making already?

MR. SOMASUNDARAM: The assumptions and the specific figures, yeah.

MR. BROOKMAN: Thank you.

MR. ROBERTS: Quick question about do you have something in your model for --

MR. BROOKMAN: This is Tom speaking.

MR. ROBERTS: I'm sorry. Tom Roberts.

Do you have anything in the model that takes into account the degradation for noncompliant installations, like, for example, now we have a lot. We know they're units, 13 SEER units being installed on improperly matched evaporators, especially to multi-family, to your point, and I don't know how to get data on it, but does the model have a C sub D for noncompliant installations?

MR. SOMASUNDARAM: I don't believe
so.

MR. ROBERTS: Well, it really should because it's a larger number than a lot of the other things we've discussed.

MR. BROOKMAN: Could you estimate that for the department?

MR. ROBERTS: I would.

MR. BROOKMAN: That would be helpful.

MR. ROBERTS: It will be anecdotal, but I'd be happy to.

MR. BROOKMAN: That would be okay.

That's a start.

Bill.

MR. McCULLOUGH: Bill McCullough.

On the first comment about the repairs is DOE assumes that the maintenance repair and installation costs will be negligible for more efficient product. What we have seen is higher efficiency product, because of the price of it, is driving more repairs of older product, and also higher
efficiency product, as we've mentioned here many times before, is in many cases much larger and clogged coils have a bigger effect than they would have in the past because it's so important for that difference.

And the other one, somebody mentioned micro channel. While that may or may not have made smaller units in R-22, the court is still in session about smaller unit for R-410A, and then if you do have a leak in that, then you're replacing probably the entire coil, which gets back to the first item that the replacement costs would be driven up.

MR. BROOKMAN: Jim.

MR. CRAWFORD: Jim Crawford.

Relative to maintenance costs, part of the analysis will certainly get into the range where modulation will be used. We'll be using ECMs on blowers, fans, and possibly on compressors, and I would urge the department to go out and get some replacement
part costs of induction motors versus ECM motors, and the conventional contact for mechanical control board versus the electronic control board, and I don't think that you will come to the conclusion that you can service those at the same cost as you can an electromechanical system.

MR. BROOKMAN: Thank you.

Equipment lifetime.

MR. SOMASUNDARAM: Yes. The last input of the LCC analysis is the equipment lifetime assumption, and we assume that the lifetime will be the same for both baseline and higher efficiency units.

In the last rulemaking, DOE used an average lifetime of 18.4 years as the assumption, and DOE seeks comments on this particular input factor.

MR. BROOKMAN: Yes, go ahead.

MR. CRAWFORD: I think the 18.4 years is not supportable, and I think that the Census data and RECS support something
more like about 11 or 12 years, and I think that the model that you're using, as I recall last time you used a model that kind of said they all survived until about 18 years, and then died that way. That's not the way things happen.

You have an exponential loss with a constant hazard function. So by the time that you are out to the average life, you have lost just under two-thirds of the population.

MR. BROOKMAN: Karim.

MR. AMRANE: Karim Amrane, HRI.

And, again, this question, we submitted comments last time, and we pointed out that others like ASHRAE, for example, goes for 15 years, something like that, and you rejected our comments, too.

So we will be submitting comments again and hopefully this time you will take our comments.

MR. BROOKMAN: Looking at this, at
equipment that is at higher levels of efficiency, that doesn't change any of the assumptions and the way it plays out.

Yes.

MR. MESSMER: Craig Messmer.

I think when you do the equipment lifetime you should also put a factor in there for equipment warranty. It has been my observation that some of these repairs are so expensive and the warranty doesn't justify doing it. So people would rather just replace the whole unit. So I'm not sure if the assumption that we have one compressor change-out in a lifetime is really an accurate way to look at it.


MR. WILKINS: I presume you're getting to the end of the section that had to do with the analysis and the approach.

MR. BROOKMAN: Yes.

MR. WILKINS: And just one further comment going back to your flow chart, I
think this flow chart is on target for selecting the possibilities when the unit is going to be replaced, especially for new housing. But keep in mind the homeowner has another choice as we've learned in the past two or three years in the replacement market, which is two-thirds of the market, and that is to replace that compressor and not put a new until in there.

So I'd urge you to look at not only what's the best option when you replace it, but trade that off against the consumer repairing that old, outdated piece of equipment.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: Thank you. Harvey Sachs.

I'm awe of the opportunity to sit here with some of the best technical people in the country from industry, as well as the department's analysts. What I have heard today, and particularly in this discussion of
life cycle analysis is an enormous amount of
anecdote and opinion, and I submit that the
entire life cycle analysis approach is two
steel beams floating on quicksand.

The department has shown a
tendency to use the life cycle analysis as
the driving agent to make its determination
when there's incredible uncertainty in every
one of the assumptions we've made, from
service life to the trajectory of electricity
prices. Life cycle analysis is the servant.
It's not the master, and I believe the
department has an obligation, and this really
builds on something that Jim Crawford said,
to let us know what window is considered to
be equal life cycle costs.

We saw in a recent proceeding life
cycle cost differences much less than a half
percent, $13 on a huge number for all of the
options considered. This is meaningless, and
I think the department owes itself and the
industry some statement on how life cycle
analysis is used because it's getting in our way when we use trivial differences to make important judgments, trivial and unsubstantiatable differences that are compounded through the analysis to draw important legal conclusions.

Thank you.

I think Jim would have said the same thing, but with different worlds. No?

MR. BROOKMAN: No need for you to say the same thing.

MR. CRAWFORD: As long as you weren't referring to my stuff as the anecdotal.

(Laughter.)

MR. BROOKMAN: Okay. So we got good comment on equipment lifetime. Are we ready to move on? Here we go.

MR. SOMASUNDARAM: So the last and final step is shipments and NIA analysis that Greg will talk about.

MR. ROSENQUIST: Okay. We come to
the last two components of the ANOPR analyses, which are, again, the shipment analysis and the national impact analysis. Both outputs from the life cycle cost analysis and life cycle cost and payback period analysis and the shipment analysis fed into the national impact analysis.

First, let's start with the shipments analysis. Its purpose is simply. It's basically to quantify the impact of standards on product shipments. The method relies on developing a shipments model, which relies on various data sources, but most importantly historical shipments data.

The model only considers shipments of the covered products, that is, of central air conditioners and heat pumps, and again, this shipment model that's developed is intended to forecast shipments over the forecast period from the assumed effective date, 2016, out 30 years to 2046.

The first part of the shipment
analysis is to develop what's called a base case shipments forecast, and this is the shipments forecast when no new standards are adopted.

And for residential shipments, we characterize two markets primarily for where shipments are going to, product sales to new construction and product sales to units that have failed and need replacement. DOE will use this general approach to characterize the shipments to split systems into single packet systems.

For new construction systems, the basic method is to take housing starts and multiply it by the saturation rate or product ownership rates in that new housing. The forecasts of new housing come from the Annual Energy Outlook, while the saturation rates come from the U.S. Census Bureau in a report called "Characteristics of New Housing."

Both sets of data are at the national level and also disaggregated down to
the census region level. Census regions are the four main regions of the U.S., the northeast, the midwest, the south and the west, and so at least for new construction we can characterize shipments possibly down to the regional level, that census regional level.

For replacement shipments the methodology is to use a retirement function that's built on the lifetime estimates in the LCC and payback period analysis and apply that to an existing stock of central air conditioners and heat pumps, and that existing stock is built up from historical shipments data. So we will be asking stakeholders, particularly industry, for that historical shipments data.

And since we're intending to do this at the product class level, we're hoping to receive that shipments data at the product class level. And because we also may need to do it at the census region level, we'll also
be asking for that data at the census region level as well.

The next step then is to finally calibrate the model, and we'll be looking at the historical forecasts or what I like to call back casts to the actually historical shipments data, and any discrepancy will be attributed to existing households that don't already own the appliance. And so we will be looking at trying to develop an historical adoption rate in these households, and then once we do, we'll carry that forward to forecast future shipments.

Now, one thing that isn't in this list that's come up in the course of today's discussions is the issue of how standards will impact replacements versus repairs, and again, just to maybe hold off on any questions you have on that topic. I'll hopefully get to that on the next slide.

MR. BROOKMAN: Jim.

MR. CRAWFORD: Jim Crawford.
You mentioned the use of census regions, and that shows up several times in the framework document. The census regions are nowhere near fine grained enough if you're going to start trying to establish regions along state boundaries.

As you said, there are four census regions. There are 50 states, and there's no reason a priori to assume that the census boundaries are appropriate boundaries for regions for HVAC.

MR. BROOKMAN: Let's let him finish and then we'll take every comment following the next slide.

MR. ROSENQUIST: This continues the discussion of base case shipments forecast, but again, for the commercial sector, and again, this is under the assumption that the analysis will have to be done for commercial applications of central air conditioners and heat pumps.

The methodology for calculating
commercial shipments is basically identical
to that for residential, and I don't know if
I needed to go through each one of these
bullets, but it's basically, again, to
classify the shipments, the new
construction, determine the shipments as
replacements to failed units, and then also
classify the shipments to existing
commercial buildings that don't already have
the appliance.

Finally, we come to the other
product classes, which aren't the primary
ones, which aren't the split systems and
single package systems, but the small duct,
high velocity systems in the space
constrained units. And here the plan is not
to use a detailed shipments model that I just
described, but just extrapolate off
historical trends because the assumption here
is that the shipments are not that great.
And of course, to be able to do
that, we're going to need that historical
shipments data from stakeholders.

So at this point there's a request for comment or actually a request for data from stakeholders for historical shipments data down to the product class level, and also down to the census region level, and if needed, to go down to even a finer level of disaggregation, possibly to the state level.

MR. BROOKMAN: So has AHRI supplied that information previously? And can you do it again this time?

Karim.

MR. AMRANE: Karim Amrane, HRI.

I believe we did supply some of the information in the past and probably we will. Again, we'll have to consult with the membership first, but I don't see why we shouldn't.

No, you're asking much more information than you used to in the past. As far as the product classes, duct through the wall, and small duct, high velocity system,
I'm not sure that we have historical data. They were lumped within the rest before. So I don't know. It's something we'll have to look into and see whether we can do it.

Now, the regional data, it's also something we'll have to see what we can do here.

MR. BROOKMAN: Okay. Yes, please, Talbot.

MR. GEE: I would also add -- Talbot Gee -- I'd add another level of what we're going to have to help supply, and not to speak for the contractors, but contractors, too, because shipments simply out of manufacturer docks even to where they get shipped to still won't answer your question. You're going to need to know final, if you can, where units are going, and then also have some account, frankly, for the stuff that gets made and purchased, but doesn't actually ever end up getting installed, too.
MR. BROOKMAN: Paul.

MR. DOPPEL: Paul Doppel. We're going to try to get some information on the ductless products so that we can show that we're a little bit bigger than a small fraction of the market.

MR. BROOKMAN: Good. Thank you.

That's helpful.

Okay. Additional comments on this, on the shipments forecast and the approach?

(No response.)

MR. ROSENQUIST: Okay. I'll go on to the next slide, which is after we've developed our base case shipments forecast, we have to do it now for the standard case shipments forecast, and that's the case where energy efficiency standards are imposed on the product.

The exact same data is used to develop the standards case shipments forecast. With the exception of one
important exception, here we try to take into account the effect that standards have on purchase price and also on operating costs to figure out the sensitivity of sales, of purchases of this equipment based upon what the standards do to purchase price and what they do to the operating cost.

And typically what we try to do is we search the literature to see whether or not there's any information on the sensitivity to purchase price and operating costs, but many times it's very difficult to get that information. There's not a lot of data out there.

So DOE may for this rulemaking forecast specific shipments drops associated with specific standard levels, and of course, we'll be looking for input from stakeholders on that possible approach.

The other thing that will be considered in coming up with these shipments forecasts is the effect of market pull
programs, things like manufacturer tax credits, consumer tax credits, and the Energy Star program.

And finally, for heat pumps and only for heat pumps, DOE will consider fuel and equipment switching. So if a standard is determined to drop the sales of heat pumps, what we plan to do is to allocate that drop in sales to increases in shipments of fossil fuel fired furnaces, as well as electric resistance furnaces.

Now, we realize that this is sort of a maximum impact situation. But with this maximum scenario what we want to do is carry this forward into the national impact analysis to see what sort of maximum effect could happen to the national energy savings associated with a particular heat pump standard level and also with the effect on national consumer economic benefits.

Now, again, one thing I haven't covered in these bullets is the possible
effect of standards on extending the repair of units that would have failed if a new standard hadn't been imposed, and this is something that we considered in the last rulemaking, and we made some very basic assumptions about that.

We assumed a particular sensitivity to purchase price, and we also assumed that the equipment would last another six years after the repair. So if we're going to incorporate that into our models, we would certainly like input on sensitivity to purchase price and operating cost savings, on a consumer's decision to extend the unit if it was going to fail, but they choose to repair it instead, and how much longer that unit would last.

MR. BROOKMAN: Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, Edison Electric Institute.

I think for this one you are good that you're trying to look at substitution
and repair. So based on what I heard earlier, I think you might need to track for central air conditioners and heat pumps just room air conditioner sales. If people are substituting room air conditioners for central air conditioners because they think it's too expensive to repair or replace, if that's happening, I think DOE needs to account for it somehow.

And then there was talk of the hybrid systems. Again, I don't know what percentage of sales those are in certain regions, but, again, I don't know in terms of substitution, but they might play a role.

And then in terms of the resistance, I'm pretty sure I remember from last time in Florida it's not necessarily furnaces. It can be baseboard heat or even just basically room heaters, portable room heaters just like I'll all it the warm room effect, that maybe especially in Florida. They just heat up one or two rooms, and
that's all they care about in the wintertime
when they have the freak cold snap.

So I'm just saying that's another
possible substitution in certain parts of the
country that you need to look at. So, yeah,
and you have some data now. I mean, I think
you're going to get data from what happened
starting in 2006 in terms of some of the
substitutions. So you can use that as well.

MR. BROOKMAN: Robert.

MR. WILKINS: Yes. Robert

Wilkins, Danfoss.

2006 central air conditioning
sales in the U.S. dropped by two million
units a year and remained flat in 2007. At
the same time, room air conditioning sales
increased by two million units a year and
remain flat in 2007.

So you've got curves that are
consistently going along together that
sharply diverged in 2006.

The other interesting statistic
is, and several of my colleagues and the equipment manufacturers have told me very consistently that sales of replacement compressors have jumped from 25 to 30 percent in the year 2006.

So there's strong evidence that people aren't replacing them. They're repairing them or they're working around them, and I think that simply needs to be included in the evaluation.

MR. BROOKMAN: Thank you.

MR. CRAWFORD: Doug, just very quickly.

MR. BROOKMAN: Yeah.

MR. CRAWFORD: Jim Crawford.

If you're willing to replace parts, there's no intrinsic life limit to a condensing unit. Every part of a condensing unit is replaceable, the same as an automobile. I mean, as long as the thing doesn't rust out, you can just keep on replacing the compressors, motors, fans,
1 coils, cabinet panels, anything.

2 MR. BROOKMAN: Okay. Thank you.

3 Additional comments on standards impacts on shipments?

4 MR. ROSENQUIST: This slide is just a couple of items from the framework document they were looking for input on. The first is that impact of standards on shipments. That's a very important aspect of doing the standard case shipments forecast, and so as part of the preliminary manufacturer impact analysis, there will be requests made to manufacturers on what they believe the impact of standards would be on shipments.

5 And of course, DOE will also accept any input from any other stakeholders that want to chime in on that subject.

6 The other item is the effect of market pull programs at affecting change in the market and promoting more efficient central air conditioners and heat pumps and
how that may play in a situation where you have new standards.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: Harvey Sachs.

One difference of this standard relative to the 2006 transition is that it will take place after the refrigerant transition to 410A or other alternatives. As I understand it, these require a very different class of refrigerant lubricants, and consequently it would seem to me the department would want to pay attention to the feasibility of doing component replacements rather than system replacements when you're trying to move from an R-22 system that may well have been capped to the expansion device to a 410A system that is using different lubricant, using different refrigerant and quite likely using different controls.

I don't have the answer, but I think it's a study area that's very germane given the concerns that have been brought up
about the replacements following 2006.

MR. BROOKMAN: Thank you.

Kyle.

MR. GILLEY: Just one echo of concern, to address a concern in one of Harvey's statements. That was that we would fully transition to 410A, and that would be different from the last go-around. That's not necessarily the case, given the uncertainties around climate change legislation and potential regulation. We could definitely be going through another refrigerant change at the same time this new rulemaking is effective.

MR. BROOKMAN: Thank you, Kyle.

MR. SACHS: Thank you.

MR. BROOKMAN: Any comments on market pull programs?

MR. SACHS: We support them.

(Laughter.)

MR. GILLEY: Well, and a passing through on them is Robert just gave you some
numbers as what's happened to the industry since 13 SEER. In effect, those same pool programs were in place during that transition.

MR. BROOKMAN: Okay.

MR. ROSENQUIST: Okay. I'll now talk about the national impact analysis, and the purpose of this is to determine the national energy savings and the national consumer economic benefits or burdens from the energy efficiency standards are going to be analyzed.

The method is developed from looking at annual time series of annual energy consumption for the stock of appliances that are in the market and also looking at the annual time series of the associated operating costs and increased equipment cost of that stock.

What the model does then that we use is it accumulates all of those values, and then it takes the difference between a
base case and a standards case to come up
with the impact from the standards case.

The model that we developed for
the NIA utilizes the shipments model that I
talked about earlier. Again, that shipments
model provides us with a shipments forecast,
and again, from those forecasts we build up a
stock or inventory of units which we track by
vintage.

Another aspect of it is that we
utilize many inputs from the LCC and payback
period analysis, specifically the per unit
total installed cost increase due to a
particular efficiency standard as well as the
per unit operating cost savings and per unit
annual energy savings.

We take those per unit values and
then aggregate the up to national values in
the NIA analysis.

We report energy savings in terms
of quads or quadrillion BTUs or ten to the
15th BTUs, and while in the LCC analysis
things are done at the site, that is, where
the unit is being used, at the particular
household or building, for this analysis we
do things at the source or at the primary,
which takes into account the transmission and
distribution of the electricity, as well as
the efficiency of the power plants.

National net present value is
determined in dollars, and again, it's an
annual time series of the effect, and what we
do is we use discount rates or discount
factors to get those annual time series of
money back down to a present value.

This flow diagram gives you a
conceptual idea of what we do when we
calculate the national energy savings. We
start with the shipments analysis, which
provides us with base case and shipments
case, shipments projections.

In the case of the base case,
those shipments projections are used to build
up, again, a stock or inventory of air
conditioning and heat pump units that are serving the nation, and we calculate the associated annual energy consumption of that stock for every year from the assumed effective date of the standard all the way out to 2046.

We do the exact same thing on the standards case side, and then we assimilate both the base case and the standards case energy consumption, apply our site to source conversion factors to convert the site energy consumption into source energy consumption, and the difference between the two is the national energy savings due to the standard.

This flow diagram gives you, again, a conceptual framework of what we do when we calculate the national net present value, and again, starting with the shipments analysis, we use it to provide us with both base case and standards case forecasts of shipments.

In the case of the base case, we
use that, again, to build up the stock of
units, and we calculate the associated
electricity cost, the associated repair and
maintenance cost, and also the equipment cost
associated with that stock.

We do the exact same thing on the
standards case side. We then accumulate the
energy electricity cost and maintenance costs
associated with that stock for both the base
case and standards case and take the
difference between the two, and that gives us
our operating cost savings to the nation from
the standard.

We do the same thing with the
equipment cost, and so the difference between
the standards case and the base case is the
increase in equipment cost to the nation of
the particular standard that we're looking
at.

We apply discount rates, of
course, to get this back down to a present
value, and we take the difference between the
If the operating cost savings are higher than the equipment cost increases, we've got a net present value which is a net benefit to the nation. If it's the other way around where the installed costs are greater than the operating cost savings, then we have a net burden to the nation from the standard.

This next slide talks about a very important input to the analysis, which is the shipment weighted efficiency data, and the reason why it's important is because many of the inputs to the analysis coming from the life cycle costs and payback period analysis are dependent upon efficiency.

So in the case of determining national energy savings, we rely on the LCC to give us the per unit annual energy savings, and again, that's dependent upon the efficiency of the product.

The same thing with the determination of NPV, which is based upon the per unit installed cost and the per unit
operating cost savings. Again, both of those are dependent upon efficiency.

In the past we've gotten historical trends of efficiency from AHRI, and these trends, these historical trends, are used to forecast what happens in the base case, that is, the case without standards, to figure out how the various per unit energy consumptions and per unit costs change in the future, again, with efficiency.

And you can see this figure here shows you the historical data for unitary air conditioners as a whole and heat pumps as a whole. We're hoping to get this type of data at the product class level and also hoping to get it at some level of regional disaggregation.

And this next slide talks about the impacts of standards on efficiency, particularly the impacts of standards on the distribution of product efficiencies, also called the market share efficiency data, and
again, we use this historical market share efficiency data to tell us how a particular standard will impact product efficiency distributions in the year the standard takes effect.

So what you see here are two figures, which correspond to two types of scenarios that DOE has used in the past. The first on the left is the roll-up scenario, and what you see there with the blue bars is the current distribution of products according to the number of models available.

And under a roll-up scenario, what happens is that that 13 SEER product rolls up to the standard that I'm hypothetically considering here, a 14 SEER. So you see that big bump-up as indicated by the yellowish-green bar.

Under the roll-up though, none of the products after 14 SEER are affected. In the shift scenario what happens is you basically shift your current distribution,
reorient it, if you will, to around the new minimum efficiency standard. In this case we're looking at a hypothetical of 14 SEER.

So you're retaining the same efficiency distribution. Now, you may ask what's so important about this. Well, the resulting shipment energy efficiency that you get from these two scenarios has a definite impact on what you estimate in terms of the national energy savings and the impacts of the consumer economics from that standard.

And then after we've developed the impact in the year that standards become effective, then we forecast that out into the future basically with the same efficiency trend that we use for the base case.

MR. BROOKMAN: Robert.

MR. WILKINS: The data I've seen from the standards in the early 1990s was the first case happened immediately in that you had the -- what did you call it? -- the roll-up phenomenon to take place, but then after a
year or two it tended to spread back out again, if I recall, Karim.

And I suspect though that it's actually the roll-up case because we were in an increasing mode anyway, and after a year or two of being under the 10 SEER, it started moving on up following its natural market and technology shift patterns.

MR. BROOKMAN: Thank you.

MR. WILKINS: For what it's worth.

MR. BROOKMAN: Thank you.

Yes, Steve Rosenstock.

MR. ROSENSTOCK: Steve Rosenstock, EEI.

And I mentioned this last time because as I recall there was the pipeline effect of the ones that met the previous standard. Back then it was like eight SEER and then it was bumped up to ten SEER. Even after 1992, there were still eight SEERs being sold on the market for X months or X years after the standard took effect. So
that also had an impact on any sort of
national energy savings.

It has happened twice, you know.
Ten SEERs were sold after January of 2006.
It did happen. That's a fact. So, again,
this time I think there should be some sort
of modeling to the effect that I'll just say
pipeline effect or time lag effect for the
units that met the previous standard being
sold after the standards become effective.

MR. BROOKMAN: Harvey.

MR. SACHS: I'd just like to take
a slightly different perspective on these
excellent, illustrative graphics. The left-
hand diagram roll-up would probably be called
by some people the co-modification model of
the market's transition. The one on the
right is what I consider to be one of the
principal goals of the voluntary programs, to
maintain the pull for the higher efficiency
products, the differentiated products.

Now, I'm not sure exactly how that
folds into your analysis, Greg, but it is something I will probably be using in our community to illustrate one of the goals.

MR. BROOKMAN: Okay. Thank you.

Additional comments on these two scenarios? Yes, please.

MR. BURT: Lane Burt, NRDC.

I would just also like to point out that the time frame when this standard is going to take into effect is going to be a good deal different than previous standards, and you have a lot of pressures that are going to -- we talked about the pressures that forced the roll-up scenario. There's also going to be some corresponding pressures that will force it toward the shift scenario in terms of primary legislation and increased market pull programs.

MR. BROOKMAN: Thank you.

Yes, please, and your name for the record.

MR. BERGT: Yes. Carl Bergt.
Question: how the standards impact or shipment analysis that may take into account room air conditioners and replacement air conditioners. What I don't see is when you do your national energy savings document, what's the negative impact of that. It's like you've totally discounted that impact, the negative impact, that those would have because you only look at what was shipped, not actually what the impact is on energy.

MR. ROSENQUIST: Yeah. I mean, first of all, let me talk about the possible equipment switch to room air conditioners. If that actually does happen, if we get inputs from stakeholders who say that will happen, then that will be modeled and the energy consumption associated with those room air conditioners will be taken into account. So that will be a drag, in other words, on the national energy savings that you would get from a prospective standard.
MR. BROOKMAN: Tom.

MR. ROBERTS: Yes, just to clarify, I think we heard that very clearly, that room air sales are up the two million, that central systems were town two millions. You're saying that needs to be submitted in writing?

MR. ROSENQUIST: Well, of course, we're going to have to look at the data ourselves, as well, right? And since it's now part of the official record, it's going to be part of the public transcript. It becomes an official comment.

But anything you could do to clarify that particular comment further would be greatly appreciated.

MR. BROOKMAN: Okay. Thank you.

So additional comments on these two scenarios? And I want to refer also to the next slide.

Jim.

MR. CRAWFORD: In the discussion
associated with, oh, 79, I guess it was, and some of those earlier charts, Greg was describing a level of disaggregation of data that I don't think he's going to get because I think I got my product class, my efficiency level. It didn't say my capacity, but you can't go very far without that by geography.

That level of data may or may not exist in the industry, but once that data is available, it tells altogether too much to competitors about what's happening in the market, and that's a level of disaggregation that you're just not going to get. I don't think I could.

MR. BROOKMAN: Karim.

MR. AMRANE: Karim Amrane, AHRI.

Again, as I said, subject to approval from the members, this is something that we might or might not, you know, proceed. I mean, I think we will have to discuss it amongst ourselves and see whether it's something that we can.
MR. ROSENQUIST: I mean, if you can't provide us with actual data, then maybe some guidance as to maybe if we do things regionally, for example, how things may shift between different regions of the country.

MR. BROOKMAN: So scan through. Greg, do you want to just set up 10-1, 10-2 and 10-3?

MR. ROSENQUIST: Yeah, yeah. Item 10-1 talks about, again, our request for historical shipment weight efficiency data by product class and by some level of regional disaggregation, and also if there's any market share data out there as well, it can even be provided at an aggregate level for all product classes. That better than nothing would be greatly appreciated.

Item 10-2 talks about comments that we would like to have on, you know, the use of these different scenarios to --

MR. BROOKMAN: We have had comment on those already.
MR. ROSENQUIST: Okay, and finally, just any general comments you might have on the NIA analysis approach.

MR. BROOKMAN: So are there additional comments on the NIA analysis, the approach therein?

(No response.)

MR. BROOKMAN: Okay. I don't see any.

Wes handed me a note about 15, 20 minutes ago suggesting that maybe on this occasion since people are starting to leave and it's 4:20 in the afternoon, that we might be able to skip the Notice of Proposed Rulemaking analyses today. Do you want to talk about that?

MR. ANDERSON: This is Wes Anderson, DOE.

If everybody is in agreement with this, since the ANOPR is in 18 months and the NOPR is in 2010, that we skip a detailed discussion on that and table that for the
ANOPR presentation. If someone has some comments on the different subject matters, if they'd turn to Slide 83, page 42, and if you haven't spoken yet on those and you want to speak on those particular issues, we can take that time now to do that.

First, let me ask: are we in agreement with that?

MR. BROOKMAN: Since there's so much time looking ahead before we get to the NOPR analyses and there will be other workshops.

MR. SACHS: There's one exception.

MR. BROOKMAN: Harvey Sachs.

MR. SACHS: Environmental impact analysis, do you want comments on issues like that? I'm sure we're going to go through the whole number.

MR. ANDERSON: Yeah, instead of going through, if you want to make comments on the particular bullet items or the chevrons on the page, I would say go ahead
and make your point now, if everybody's in
agreement with trying to end this early
without going into detail with the NOPR.

I don't want to force upon the
public that we're trying to skip over your
issues.

MR. BROOKMAN: Yes, Talbot.

MR. GEE: Another suggestion, that
manufacturer impact analysis just be adjusted
to channel impact analysis.

MR. BROOKMAN: Okay. Yeah, there
was suggested that it become market impact
analysis to reflect the entire distribution
chain.

Please, Lane.

MR. BURT: Lane Burt.

To speak about the environmental
impact analysis and specifically the
monetization of CO2 question, there really
needs to be considered in terms of the
financial side in the life cycle costs and
net present value. We've commented on this
before, but we see that by the time this ruling takes effect, there's going to be a price on carbon, and refusing to set a price on carbon and put it into the analysis is effectively speculating a zero cost, which is going to be very incorrect.

MR. GILLEY: I would just ask for support from our friends from NRDC that, again, this makes the case that there needs to be some balance in this rulemaking to what we do from a refrigerant standpoint. If you're asking for that on CO2, there needs to be some consideration given in the process of this rulemaking to the impact climate change is going to have on the refrigerants we use.

MR. BROOKMAN: So that was Kyle speaking, and now here to Harvey.

MR. SACHS: We look forward to those conversations. I think our record is pretty clear in terms of T-WEE (phonetic) and concepts like this. We very much look forward to that.
MR. BROOKMAN: Don Brundage.

MR. BRUNDAGE: Just make a comment that while it is likely there would be factors like this included, you're changing parts of analysis and not others, and the Annual Energy Outlook makes assumptions of no changes in regulation after the date that it is issued.

So making those sorts of changes unless it's just separately in an environmental impact, you need to be careful that you're not inconsistent in the way you're -- if you did just an environmental impact, it's one thing, but to put it in the depths of a study, you're running into inconsistencies because the other things in the forecast are not done that way.

MR. BROOKMAN: Okay. Thank you.

Tom.

MR. ROBERTS: And one quick thing will be the carbon equivalent monetization of the increased cost of the carbon footprint of
the higher efficiency units on the credit side.

MR. BROOKMAN: Thank you.

Steve.

MR. ROSENSTOCK: A couple of things since we're skipping ahead. Twenty-six states have RPS mandates. Four states have RPS goals. That's probably going to increase over time. So that should be accounted for in this analysis.

Number two, there's another slide since we're --

MR. BROOKMAN: Yes.

MR. ROSENSTOCK: -- going ahead to utility impact analysis. It says method, energy savings translated to a reduction in the electrical demand faced by the utility systems over time. If EERs try to go down, no way to do that. I'm sorry. That's a totally incorrect modeling, totally incorrect analysis.

Again, based on if EERs stay flat
or go down.

MR. BROOKMAN: Okay.

MR. ROSENSTOCK: You can't do that. I'm sorry.

MR. BROOKMAN: Okay. Thanks, thanks.

So, yeah. I appreciate those of you taking advantage of this opportunity to talk about issues that matter to you, and let's make sure everybody gets a chance to do that. So any other comments that are presently in the slides incorporated in the NOPR section?

Wes.

MR. ANDERSON: I just want to make clear that even though we did not cover this -- this is Wes Anderson, DOE -- that we did not cover this, you can still submit your comments to the questions that are in the framework documents.

MR. BROOKMAN: Their detailed comments.
MR. ANDERSON: Their very detailed comments. We want as much detail as possible.

Thank you.

MR. BROOKMAN: Okay. So the last item on the agenda, we still want to provide an opportunity for anybody to raise an additional issue, perhaps something you didn't cover today. Anything else left over that needs to be stated at the end of the day here today?

Steve Rosenstock.

MR. ROSENSTOCK: Again, Steve Rosenstock.

Again, I apologize. I was out of the meeting. Any change on the due date for comments? July 31st?

MR. ANDERSON: This is Wes Anderson, DOE.

To reiterate Ron's, let's go to the last page. Everyone has the handouts.

MR. BROOKMAN: And since some of
you are heading for the door, let me note also that past after the packet is the evaluation form. Please take a minute to fill it out. The department reads them carefully.

MR. ANDERSON: We have instructions on how to submit comments. I talked about those earlier. And the date has changed to July 31st, 2008, for deadline on comments.

MR. BROOKMAN: Ron Lewis also requested if it's possible to send them in not all on July 31st, that would be a good thing. A whole rath of comments come in, and so they can start being read as soon as they show up at DOE.

Yes, Karim.

MR. AMRANE: Karim Amrane, HRI.

I guess I have a question about process here. I mean, what's going to happen between now and the ANOPR? What, a year, 15 months more time lag?
MR. ANDERSON: Yeah.

MR. AMRANE: Is there any plan from DOE to interact with stakeholders to see where you are? I don't know. I mean, I think we need to.

MR. ANDERSON: Right now we're going to rely on the comment period, and if we do have questions or you have questions for us, please submit those as well on the process. We will address the comments at this point, and there will be some interaction.

MR. CHRISTOPHER: Mike Christopher with Navigant Consulting.

Karim, there is at least the preliminary manufacturer impact interviews. So that's an opportunity to work face to face with manufacturers, and we do make an effort to ask.

MR. AMRANE: Karim Amrane again.

I think I'm find with that, but I think in addition to that, I think I would
like to suggest that maybe we do halfway 
through have maybe like a form conference 
call. I don't know. Something we did in the 
past on the commercial side where DOE will 
update us on what we have done. 

I think it would be very helpful 
to everybody.

MR. BROOKMAN: Thanks for that 
process note. Thank you.

Wes.

MR. ANDERSON: This is Wes.

I want to hold off on committing 
right now. We'll get back to you on that. 
If you want to submit that as a comment, but 
we'd like to keep all of our communications 
open to the public, not just to the 
manufacturers and that kind of thing. So 
that's one of the reasons why we're hesitant 
to talk.

MR. AMRANE: I was not suggesting 
just for the manufacturers. I was suggesting 
for the entire group.
MR. BROOKMAN: Okay. Thank you.

Yes, Don.

MR. BRUNDAGE: One of the areas that's so glaring in that there's uncertainty in what DOE can and can't do is regional standards. It's hard to even make comments at this point on regional standards.

I've made a number of questions to DOE which I presume will get answered when the ANOPR is issued on what the limitations are on regional standards, but it would appear to me that unless we're going to not really address whether there's going to be regional standards until the ANOPR set of hearings starts, at some point after some of these short-term legal questions on what DOE feels it can and can't do, I think you need to have a whole other meeting just on regional standards so that we can hash those out because that has not been adequately addressed today because there's so much uncertainty on what DOE thinks it can and
can't do.

It's just very speculative, and it's hard to even comment on the merits of it at this point.

MR. BROOKMAN: And what would you suggest the form for that would be?

MR. BRUNDAGE: to have a day meeting like this after some of the legal questions on what DOE feels its flexibility is and what it can and can't do, and we can discuss some basic issues like which states ought to be hot, humid, which ones ought to be hot, dry, and which ones ought to be in the everybody else.

I mean there are just a lot of issues related to this, and it hasn't been addressed adequately, and without some answers from the DOE and some interaction, I don't see how it can be.

MR. BROOKMAN: Jim Crawford.

MR. CRAWFORD: A follow-on to Don's point. I would certainly add there
whether or not that type of classification
that he just iterated is even the right
classification at all for regions. It was
mentioned earlier that heat in degree-days or
cooling degree-days may be the more
appropriate measurement.

And I think that we have
articulated during the day numerous areas
where there is not a common understanding,
much less a common viewpoint, on central
issues in this entire analytical process.

In my opening remarks, I suggested
that we consider periodic workshops, open
workshops to everybody here and everybody
that should have been here, so that we can
begin to nail these things down.

And in the area of establishing
regional regions, the very first thing is
what's the criteria, and we have not had
that. this framework document is written to
elicit from us a data dump, and with the
implication that the DOE and the contractors
will then go off and do their analysis, and
then they'll throw it over the wall.
And that's simply not the way to
get the kind of results that I think you want
and we want.

MR. BROOKMAN: Robert.

MR. WILKINS: Yeah, in a lot of
ways I'd like to reiterate that. I think
that's a great point. I think we had very
open discussion today, which will prove quite
fruitful. We had great exchanges, resolved
some things, I think, and I think the idea of
continuing to having open workshops is a
great idea. We can build on the cooperation
that we've had here today and move forward
together.

MR. BROOKMAN: Kyle.

MR. GILLEY: I would defer to my
friends from the distributor and contracting
community, but even before you start having
discussions about appropriate regions and
things of that nature, I think you ought to
address the enforcement issue. It's meaningless unless there can be some enforcement in regional standards. It's almost you need an entire workshop just to talk about enforcement because if you can't develop an enforcement mechanism, it's a meaningless exercise.

And in all due respect to my friends from California, we're starting to see that in that market now where CDC has been very active in a number of fronts resulting in, you know, meaningful benefit to well intentioned benefits from the rules. Unfortunately they've ignored enforcement and now it is starting to manipulate the marketplace in California. You don't want to do that on a regional basis with this rulemaking.

MR. BROOKMAN: Paul.

MR. DOPPEL: I'd again like to thank DOE for the good discussion today and having this meeting. Probably the most
disappointing thing today was not having any more idea about what the regional standard is going to be based on, and just to augment also what Mr. Crawford was saying, that you know, that could be very important to how products are designed in the future, and right now we don't know if DOE is going to establish what those regional standards are or what they mean, if you're going to do that in the dark, if you're going to invite more comments from industry.

So we'd like to encourage, as was suggested, having, you know, maybe another meeting, a collaborative type meeting to help orchestrate some sort of definition about what the regions are and what the impacts of those are going to be.

MR. BROOKMAN: Okay. Yes.

MR. McCRUDDEN: To Kyle's point, you know, on a workshop or something on enforcement, you know, the language that you ended up getting from Congress says that not
later than 90 days after the date of the
issuance of the final rule that establishes
regional standards, the Secretary shall
initiate a rulemaking and develop and
implement and effective enforcement plan.

I mean, that's the cart before the
horse. How do we know it's going to work if
we don't know what's going to work?

So I think that's a very
appropriate workshop to host at some point in
the near future.

MR. BROOKMAN: So Talbot and then
I'll go to Tom.

So I think the department welcomes
now in these final comments your thoughts on
process issues and other issues if you'd
queue up for them to consider looking ahead.

MR. GEE: And I would just say
that HUD has spent the entire summer of the
energy bill debate trying to figure out a
potentially workable way in any type of
regional stance, and frankly, we were stumped
to do so because of the enforcement issues primarily.

So I'm not trying to sound like we're punting here, but I don't think you'll see from us a proposal for how these regions would be established because we couldn't figure that out a year ago. So I'm not sure why we'd be able to figure that out now.

So the strong proponents of a regionalization format already have ideas of how they might want to draw these lines and enforce them. Then let's perhaps see those and debate those in these discussions.

MR. BROOKMAN: Tom.

MR. ROBERTS: Tom Roberts.

The only thing we know is we know the grain of the regional standard is state sizes, right? So starting with that, then to really do this right we'd have to do all the work we're talking about doing today state by state, 50 studies like this; then mix them and match them in a huge matrix the size of
the state of Philadelphia or Pennsylvania --
sorry -- and then we'd have some answers.

But that doesn't seem realistic to
even study what this possible implication of
regionality could because the climate has yet
to choose to align itself over state lines.

So if we could punch through that
and see what is it beneath regional standards
that people are looking for, like better
functioning systems in hot, dry, better
functioning systems in warm, humid, and other
possibly EER considerations, then maybe we
could make real progress.

MR. BROOKMAN: Harvey.

MR. SACHS: To some extent I bear
some blame for articulating this question,
and I'm happy to circulate through Brenda a
manuscript that several of us worked on that
really does have a strawman, a point at which
we can begin the discussion.

There will be some conversation on
this at the ASHRAE meeting at Salt Lake City
on Tuesday morning. You're certainly invited to that as well.

I would offer that strawman not as the answer, but as one place to start from, and I would join with Jim and with others in the suggestion that we do need to have some collaborative effort. We do need to have some talk. We can't do this stuff in the dark and expect it to be accepted. We have precedent for that in the furnaces electricity workshop that Gammel organized a number of years ago, and even though we'll be out gunned and out personed and everything else by industry, we still believe that having this kind of iterative, collaborative work is likely to be beneficial to the process.

And finally, with respect to the issue of whether the regulatory mechanism ought to come first or last, I think the law is fairly clear. We may as well just work within in that and see if the savings are
worth pursuing by developing a regulatory
mechanism, and that's something which we can
do together with some simulations and some
discussion and move from that to the
questions that are much harder because they
involve people and laws and regulations.

Thank you.

MR. BROOKMAN: Thank you.

Final comments? This last
discussion I think has been very useful from
the department's perspective.

Lance.

MR. DELAURA: Just a quick
comment. I agree with the notion that we
really need to tie up the ends on the
regions. I heard what Harvey just said, and
that makes a lot of sense to me, but at some
point, it would make sense to have all of
these players involved in the discussion that
speaks specifically to those regions. Is it
a state? Is it five states joined together?
Is it the West, the East, you know, wherever
it might be?

The two elements, I mean, it's one of the key elements, and it's sort of the chicken and the egg. Which one comes first? You do the technical analysis, and then you get to this or do you get to this and then do the technical analysis?

That isn't so important, but I think what is important is that everyone at this table and in this room has a chance to give input on what those regions, if there are to be regions, what they look like and what the rationale is and why, and if there's one region, two, three, whatever it ends up being the base case plus two, everyone buys into that or at least everyone gets a chance to express their thoughts and feelings and that they can walk away and go back to their respective companies and say this is it and here's why. Here's the rationale for it.

MR. BROOKMAN: Talbot.

MR. GEE: Is there an opportunity
to use the two-plus year old increase of 13 SEER to try to see maybe if that was justified and if so where as maybe the starting point? Because, frankly, I think that's a big question mark, too.

So before you're thinking about if the number was even higher, maybe use what data might already be there based on 13 and see maybe if there were place where it was justified that could even open the discussion about raising it in those areas.

PARTICIPANT: It is aggregated national into winners and losers.

MR. BROOKMAN: Jim.

MR. CRAWFORD: Jim Crawford.

Just to reiterate a point I made earlier, and that is that the whole issue of metrics has to be resolved pretty quickly. What metrics does DOE feel that they're authorized to use in this process, and we start there because until we know that, a lot of what we've talked about today may be
MR. BROOKMAN: Okay. Thank you.

So then from my perspective, I just thank all of you for what I thought was a very productive exchange today, and I'll turn it back to Wes for closing remarks.

MR. ANDERSON: Wes Anderson, DOE.

I would like to thank you guys for coming out, ladies and gentlemen for coming out and expressing your opinion. Contrary to popular belief, this is not a data dump. We really want your specific, detailed responses to our questions. We will take that. We do listen; we will listen, and so I want to enforce that request. Please, please, please get your comments in as soon as possible, as early as possible to help us so we can help you.

Thank you.

MR. BROOKMAN: Save travel to everyone.

(Applause.)
MR. BROOKMAN: Please turn in your evaluation forms. That helps us.

(Whereupon, at 4:40 p.m., the meeting in the above-entitled matter was concluded.)
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