BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (FLORIDA POWER & LIGHT COMPANY).	DOCKET NO. 080407-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (PROGRESS ENERGY FLORIDA, INC.).	DOCKET NO. 080408-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (TAMPA ELECTRIC COMPANY).	DOCKET NO. 080409-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (GULF POWER COMPANY).	DOCKET NO. 080410-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (FLORIDA PUBLIC UTILITIES COMPANY).	DOCKET NO. 080411-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (ORLANDO UTILITIES COMMISSION).	DOCKET NO. 080412-EG
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (JEA).	DOCKET NO. 080413-EG

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VOLUME 5

Pages 947 through 1198

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PROCEEDINGS: HEARING

FLORIDA PUBLIC SERVICE COMMISSION

COMMISSIONERS PARTICIPATING:	CHAIRMAN MATTHEW M. CARTER, II COMMISSIONER LISA POLAK EDGAR COMMISSIONER KATRINA J. McMURRIAN COMMISSIONER NANCY ARGENZIANO COMMISSIONER NATHAN A. SKOP
DATE:	Wednesday, August 12, 2009
TIME:	Commenced at 9:43 a.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	LINDA BOLES, RPR, CRR Official FPSC Reporter (850) 413-6734
PARTICIPATING:	(As heretofore noted.)

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COMMISSIONER EDGAR: If we could all gather, we'll get started here in just a moment.

Okay. I call this hearing to order this morning, day three, I believe. Chairman Carter had another appointment this morning. He's asked me to go ahead and get us started and help keep things moving along, so that will be my goal. I will also share with you that my goal is to finish tomorrow. I do understand that we have some scheduling concerns, many do as far as flights and other meetings and all of that. As always, we will do our best to accommodate those sorts of requests, with the understanding that we need to keep things moving in an orderly manner and for an orderly record. I ask the participation and assistance of all involved to help keep us moving and not get bogged down, with, of course, the understanding that we will take the time that we need to to do the business that we are all here to do.

And so with that, my understanding is that where we left off yesterday, we had Witness Rufo, who is back with us, who was taking questions on cross.

Ms. Helton, where do we best start?

MS. HELTON: I believe that there was a standing objection from -- I can't remember if it was Mr. Guyton or Ms. Clark concerning a question that Mr. Longstreth had asked. And, quite frankly, I'm not sure this morning that I can remember the specific question, so maybe we can just start fresh and let Mr. Longstreth ask his question and we can see where we go from there.

COMMISSIONER EDGAR: Okay. And my memory is that we had an objection to a question from Ms. Clark that was left pending, that -- I can't speak for everybody in the room, but I know I was tired. So my suggestion is that we ask for the question to be repeated or reposed, and then, Ms. Clark, we'll see where we are and go from there.

COMMISSIONER ARGENZIANO: And, Madam Chair, before we do that, I'd just like to acknowledge that I'm on the phone and will be throughout the day.

COMMISSIONER EDGAR: Great. Thank you, Commissioner. Thank you for joining us.

COMMISSIONER ARGENZIANO: Thank you.

MR. LONGSTRETH: Thank you, Commissioner.

CROSS EXAMINATION (CONTINUED)

BY MR. LONGSTRETH:

Q. So the question -- this is Mr. Longstreth --

that I would like to pose is if Mr. Rufo could consider the residential tables that include measures that were excluded by the two-year payback. We were looking particularly at just, to take one example, the low flow showerhead, and the question was whether the, in Mr. Rufo's opinion the penetration rate for, that we see on this table could be increased if an incentive were included.

MS. CLARK: Madam Chairman?

COMMISSIONER EDGAR: Ms. Clark.

MS. CLARK: Yes. We had objected to questions asking for his opinion on these things because he has not -- his testimony doesn't cover that, nor was he offered to testify on these things. His -- the reason for citing those studies was just to show his credentials and not to report on what was in those studies or what was the result of those studies.

COMMISSIONER EDGAR: Ms. Helton?

MS. HELTON: Maybe, Madam Chairman, if we could hear from Mr. Longstreth, and then I could --

COMMISSIONER EDGAR: Okay. Mr. Longstreth?

MR. LONGSTRETH: Excuse me. I'll just be quick.

In this question I'm not referring to any studies outside of the particular study that the

document we're looking at was produced by Itron and includes the naturally achievable rate. The reason we believe that this is within the scope of Mr. Rufo's testimony is that he is the one who has conducted the achievable analysis, and I'm asking whether the achievable results would change if an incentive were provided.

COMMISSIONER EDGAR: In his opinion.

MR. LONGSTRETH: In his opinion. Absolutely.

MS. CLARK: Madam Chairman, we don't object to that question.

COMMISSIONER EDGAR: Thank you.

Mr. Rufo, can you respond to the question?

THE WITNESS: Yes. I actually thought we discussed this yesterday, but perhaps my memory is failing me.

And I believe what I said was that -- in fact, I thought I asked a clarifying question about whether we were talking about the real world or the simulated world of the model.

So I would, I would say in the, in the real world of implementing programs that likely applying an incentive would have some effect on the adoption rate and that there are, you know, additional other approaches to increasing adoption besides incentives,

information and such things to reduce the market barriers that we, that we talked about. In the modeling world, as I've described the model my testimony, it's deterministic, so there are two ways to increase adoption in the model. One is through marketing and information dollars, which increase awareness and knowledge, and the other is through the incentives, which changes the customer BC ratio.

MR. LONGSTRETH: Thank you. And I may have been tired and forgotten which question it is, but if I was, I'm sure we'll come across it.

BY MR. LONGSTRETH:

Q. Mr. Rufo, in past energy efficiency potential studies you have conducted, considering the list attached to your testimony, have you ever recommended techniques to address or minimize free riders?

MS. CLARK: I object to that question. He has not been offered for, he has not -- his testimony does not offer opinions on the guidelines that were given to him, nor has he testified what the guidelines were in other jurisdictions. This is clearly outside the scope of his testimony.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: We would suggest that because Mr. Rufo is an expert in considering achievable

potential, he may have opinions about free riders that would be, that would be helpful and are within the scope and clearly related to the analysis that he conducted.

MS. CLARK: Madam Chairman, if I may. On Page 6 of his testimony, Lines 20 through 21, we make it clear that he is not here to advocate any policy or guidelines positions. He is here -- he was retained to provide the technical achievable potentials based on industry-recognized unbiased methods, modeling methods and in accordance with the directions provided by the utilities. This witness is not their witness. They have provided the testimony of a number of witnesses who could have commented on that.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: Madam Chairman, if I could, in our view, this goes, this question is key to whether the two-year payback used is an industry-recognized methodology that was used here.

COMMISSIONER EDGAR: I'm going to ask you to restate the question and see where that takes us.

MR. LONGSTRETH: Thank you.

COMMISSIONER EDGAR: Restate or rephrase. I'll leave that to you.

MR. LONGSTRETH: I will do my best.

BY MR. LONGSTRETH:

Q. Mr. Rufo, in your opinion, is the two-year payback technique for minimizing free riders an industry-recognized technique to achieve that objective?

MS. CLARK: Madam Chairman?

COMMISSIONER EDGAR: Ms. Clark.

MS. CLARK: As you might recall, that was part of the guidelines given by the Collaborative to Mr. Rufo. It was not within the scope of what he did to offer anything different or offer his opinion or policy, nor has he done so in this testimony. As the witnesses before him have testified, it was what the Collaborative had decided on and what was provided to him as the guidelines in doing the study.

COMMISSIONER EDGAR: Ms. Helton?

MS. HELTON: Madam Chairman, I see a distinction between asking him his opinion about a table that he put together and the numbers generated on that table and what outcome would change if -- what would be different if he changed one of the parameters versus asking him a question about something that's clearly outside the scope of his testimony. My recommendation is that you sustain the objection and we move on.

COMMISSIONER EDGAR: Okay. I started out saying that I wanted to keep us moving and, again, I'm going to ask for all parties' assistance in doing that.

I do agree with Ms. Helton. I concur that, that asking a witness who has been put forth to give testimony his opinion is, I think that is deserving of some latitude.

So with that, we will recognize that latitude that was given yesterday and that I am going to try to give in an appropriate manner today and sustain the objection and ask that we move on.

MR. LONGSTRETH: Thank you.

BY MR. LONGSTRETH:

Q. Mr. Rufo, is it correct that the DSM ASSYST model estimates both the natural occurring future measure penetrations and those that can be achieved with DSM?

A. Yes.

Q. And does the model calculate the difference between what will be naturally occurring and what can be achieved through DSM?

A. The difference?

Q. Correct.

A. Yes.

Q. And does this mean that the achievable potential study shows the achievable potential net of free riders, in other words, not including free riders?

A. The achievable potential study, you mean the results filed here, whether they're net or what would --

Q. Well, I, I believe it should be, it would be -- correct.

A. The model produces total adoptions with the model program interventions and an estimate of naturally occurring. And the difference there between the gross total and the naturally occurring is what we often refer to as net. And thus the naturally occurring is, is related to the free ridership, but the only caveat there is that the free riders are the portion of naturally occurring that would actually participate in the program. Not all naturally occurring adoptions might participate in the program.

Q. And, Mr. Rufo, will there be free riders for measures that were not excluded due to the two-year payback?

A. Yes.

Q. I'd just like to look at Page 23 of your testimony, if you could, and I'd just like very quickly to walk through these bullets. And for the sake of, of speed, I'll just read then the first bullet is the availability of the adoption opportunity as a function of capital equipment, turnover rates and changes in building stock over time. Does this -- is this something that can be affected by utility decisions?

A. One element -- I mean, this bullet is really

just, just trying to point out that, unlike the technical and economic potential estimates which are these very theoretical snapshots in which the magic wand is waved and all the capital equipment suddenly turns over, in the achievable potential there's stock accounting that's done to take account of the fact that capital equipment, the best, most cost-effective time to address capital equipment is at the end of its natural life. So a large chiller may last 20 years, and the time at which an efficiency-related decision is likely to be made is at the end of that life. So that bullet is primarily referring to the availability of decisions that could be affected.

So the turnover of the capital equipment itself is, is not likely to be affected. There are some elements of that that are at times affected through early replacement programs.

Q. And turning to the second bullet, it's customer awareness and knowledge of the efficiency measure. And I'd pose the same question: Can, can, is this something that utilities can effect?

A. Yes. Yes. And that's, that's been described in the, in the testimony, how the model does that.

Q. And in this study did the utilities consider alternative levels of effort on this factor?

A. I believe we, we had one level of marketing information expenditures inclusive of -- that includes audit effects. There's been a lot of discussion about audits and those are captured there. But I believe there are one, one set of program numbers that were run.

Q. Right. The third bullet, cost-effectiveness, cost-effectiveness of the efficiency measure, could you just briefly explain what that refers to and whether that's something the utility can effect through their programs?

A. So this refers, as we discussed yesterday in going over the adoption curve, to in this methodology the customer's benefit-cost ratio. And I think yesterday we, we were looking at Exhibit A and the different types of barrier curves. There's also an Exhibit B, which just shows how in this modeling methodology it changed in the benefit-cost ratio -- moves you to a different place on that adoption curve.

So in the modeling world, yes. In the real world, it was noted by previous witnesses that there are times when a rebate might in fact not have the predicted effect on adoption due to a variety of different factors.

Q. But is it correct that generally speaking rebates affect the cost side of the cost-effectiveness,

and therefore utilities can change this?

A. Yes. If the vendors don't trans -- take that surplus and -- if there's an effect on the price seen by the end user, yes.

Q. And in your experience, I know it certainly -- I'm sure it does happen that vendors can take a piece of that. In your experience does that always happen, or can rebates often be effective?

A. It certainly does not always happen.

Q. I think I will, for the sake of time, skip the fourth bullet here, unless you feel I should -- you need for completeness to go over that.

And I'd just like to ask about the effect of offering incentives, and I thought it would be useful to consider this hypothetical where we take two measures. The first we'll call Measure A. No incentive is provided for this, and the customer payback is precisely two years. For Measure B, an incentive is provided that brings the customer down to a two-year payback, but there is a rebate provided.

Would you expect that customers would adopt these two measures at the same rate?

A. In this modeling framework, if they were on the same, had the same adoption curve, then they would. In, in the real world they may or may not.

Q. And do you have any experience to indicate that offering a rebate will, even where the payback is the same, in the real world as you say in your opinion, could that increase adoption by, by customers?

A. So you're saying two measures of the same payback, but one started as a higher payback measure and was brought down to a two-year payback.

Q. Correct. And, therefore, I mean, just to be totally transparent here, it appears to me that when customers receive a rebate, they feel that they're getting more value and it is a motivating factor. You know, we get rebates and sales all the time in stores.

A. Okay. That's what I thought you might have been referring to.

Q. Correct.

A. You know, I think there's, there's some evidence of, of that kind of an effect, sometimes called a halo effect. I think, you know, it depends on the situation and the end user's perception of the entity providing the rebate and other factors.

Q. Thank you. I just want to ask you about the technical potential study. And does the technical potential study, does that account for the differences that exist between a state -- for example, Florida and states in other climates and states that have been

running more programs or fewer programs such that people in their houses have different appliances and degrees of weatherization and such?

A. Yes.

Q. One moment. Just while we're passing out this next exhibit, I'm just going to explain in general the nature of the next question to speed things along, if that's okay.

So, Mr. Rufo, I'm, we're passing out the technical, and excerpt from the technical potential, and I just wanted to run through the incomplete factor with you so that this is clear just what this is and how you derive -- one could determine the current penetration rates.

MR. GUYTON: Mr. Longstreth, is this from the Florida technical potential or a utility-specific technical potential study?

MR. LONGSTRETH: It is from the Florida Power & Light --

MR. GUYTON: Okay.

MR. LONGSTRETH: -- technical potential. Thank you for --

COMMISSIONER EDGAR: So is this something that you're going to want to mark or is it just for cross?

MS. FLEMING: Madam Chair, this is already,

the technical potential studies are already included in staff's composite exhibit, I believe.

COMMISSIONER EDGAR: Thank you.

MS. FLEMING: Thank you.

COMMISSIONER EDGAR: Okay. That answers that. Thank you.

MR. LONGSTRETH: Yes.

And I'll just note that we are handing out, I believe, an additional item that we'll discuss in a moment just for expediency.

COMMISSIONER EDGAR: Okay. We're ready when you are.

MR. LONGSTRETH: Thank you.

BY MR. LONGSTRETH:

Q. Mr. Rufo, if we could just look at the -- well, I just had turned to Page B.1 and measure, say the reflective roof measure, Number 143. Could you just explain to me how you would determine -- whether you can determine from this document the current penetration of that measure?

A. So the estimated current penetration is 100 percent minus 80.7 percent. So it would be 19.3 percent.

Q. Okay. Thank you. And do you -- yeah. Thank you.

Just one moment further.

(Pause.)

Pardon for that glitch here.

Mr. Rufo, during your opening you characterized the goals that were set in this case, I believe, and please correct me if I'm wrong, as aggressive and I believe it was reasonable. Is that correct?

A. I'm sorry. Where did I do that again?

Q. In your, I thought in your opening statement of your testimony today (sic.) you referred to them as -- I'm quite confident the first word was aggressive and that the second started with an R, but I'm not -- so please refresh your recollection.

A. I need to -- I think I, I think I gave that to the court reporter yesterday. Did she give it back to me?

COMMISSIONER EDGAR: Are you referring to the summary of his -- or the overview summary of his testimony that he gave yesterday when we first --

MR. LONGSTRETH: Correct. Well, I mean, if -- do you -- I don't need the verbatim, but would you -- I'll just make a question.

COMMISSIONER EDGAR: Let's try it again. Oh, wait a minute. Ms. Clark, are you --

THE WITNESS: Yeah, I'd like to, I'd like to get it right.

COMMISSIONER EDGAR: Okay. Thank you.

THE WITNESS: Go ahead.

COMMISSIONER EDGAR: Okay. Go ahead and ask your question, please.

BY MR. LONGSTRETH:

Q. Mr. Rufo, could you repeat the characterization you offered in your, your opening summary for me?

A. Okay. I'd just like to skim it for a moment to find --

Q. Take your time.

A. -- if there are multiple places in which a characterization like that is made.

I believe what I said here, according to the summary that I brought up yesterday, was in the concluding sentences. Do you recall if these references were --

Q. That, that could be correct.

A. -- in the last couple of sentences? Yeah.

What I have is the study results provide directly relevant estimates of achievable potential for the measures passing the cost-effectiveness and the screening criteria.

COMMISSIONER EDGAR: Yeah. I can't get it either. You need to slow down.

THE WITNESS: All right. I was --

COMMISSIONER EDGAR: Even though that's not something I'm generally going to say, but, yeah.

THE WITNESS: I was trying to save time. I will slow down.

Itron study results provide directly relevant estimates of achievable potential for the measures passing the cost-effectiveness and screening criteria. The resulting estimates of achievable potential are reasonable estimates under the criteria that define each scenario.

BY MR. LONGSTRETH:

Q. Okay. Mr. Rufo, I'll just -- am I correct that you do not recall characterizing the goals as aggressive?

A. Not in the summary, no.

Q. And I'll just, as a question, would you characterize the goals as aggressive?

A. I guess, I guess terms like that are squishy, so I'm not sure how, what the implied definition of aggressive is in this, in this context.

Q. That, that's a fine answer.

Mr. Rufo, is it correct that you did a

potential study for California in 2008?

A. Itron did, yes.

Q. And, Mr. Rufo, do you -- what's the most recent data you have available for the actual levels of energy efficiency that have been achieved recently in California?

MS. CLARK: Mr. Chairman -- Madam Chairman.

COMMISSIONER EDGAR: Yes, ma'am.

MS. CLARK: Again, he has been offered here to support the technical study and the models that support that. He has not been offered to give testimony on what is being done in other states or comparing Florida to other states, so I would object to this line of questioning.

COMMISSIONER EDGAR: Mr. Longstreth.

MR. LONGSTRETH: I can -- I understand we'll do rebuttal shortly, and I can revisit this at that point, I believe. So I'll withdraw the question for the moment.

COMMISSIONER EDGAR: Okay. The question is withdrawn and we will move along. So let's move along.

MR. LONGSTRETH: So, we passed out a second set of documents that we would ask to have entered into the record. They are responses from -- short title would be --

COMMISSIONER EDGAR: Okay. I have two. Hang on, just so I know what I'm looking at. Hopefully we all do. I have two pages, one with a chart and one with question and answer.

MR. LONGSTRETH: Correct.

COMMISSIONER EDGAR: This is a composite?

MR. LONGSTRETH: It is a composite.

COMMISSIONER EDGAR: Okay. Thank you.

MS. FLEMING: Madam Chair?

COMMISSIONER EDGAR: Ms. Fleming.

MS. FLEMING: Are you referring to this chart that's labeled Exhibit MR-1?

MR. LONGSTRETH: Correct.

MS. FLEMING: That's already contained as part of prefiled exhibits, so I would not suggest marking this as an exhibit at this time.

COMMISSIONER EDGAR: Okay. Then we'll use this just for cross. We can go ahead and mark the single page Q and A. Go ahead and give me a title, please.

MS. CLARK: Actually, Madam Chair, if I can be clear.

COMMISSIONER EDGAR: Oh, Ms. Clark.

MS. CLARK: That is not part of MR-1. It's actually mislabeled. This is some information about the

studies on that chart. And if I may at this point interject an objection to these two documents. Again, these go to other studies. They were provided in discovery. As you know, discovery is more broad ranging than what may be allowed in hearing. And, again, these go to the results and information about other studies for which he has not provided testimony today.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: Madam Chairman, we believe this is, is discovery from this case. We also believe that these are, are relevant to consider the results that were obtained in, in this example, in this specific instance.

COMMISSIONER EDGAR: Ms. Helton? Ms. Helton?

MS. HELTON: Yes, ma'am. Mr. Longstreth was given a great deal of latitude yesterday to ask questions and have the witness answer questions about the studies that he had listed in his, as an exhibit to his prefiled direct testimony. Here we're going in and talking about information from projects that were considered by other state commissions, and I'm just, I think we've gone a little bit far afield from what we're doing here.

COMMISSIONER EDGAR: My thoughts exactly. I think we have gone far afield. The objection is

sustained, and I will ask you to move on to your next line of questioning.

MR. JACOBS: If I may, Madam Chair. With all due respect, we accept the ruling, but I would, I would refer us to the standard in the statute, 350.042, as well as the general standards of evidence. And under that we would proffer, we would proffer this for the record and ask that we reserve our rights to consider it as need be in further, further proceedings.

COMMISSIONER EDGAR: So noted.

MR. JACOBS: So we can mark it under that?

COMMISSIONER EDGAR: Ms. Helton, should we mark for a proffer?

MS. HELTON: Yes, ma'am. We should, we should mark it for a proffer. And I recognize what Mr. Jacobs said, that, you know, the APA, Chapter 120 tells us that the standard for what is admissible in an administrative hearing is broader than that which is admissible in a civil proceeding. And I also acknowledge that the APA says that hearsay evidence is admissible. But hearsay evidence can only be relied upon if there's some other evidence in the record that's not hearsay to corroborate it.

Here what we have is hearsay evidence. We have no way to validate the truth of the information

that's here. We are not setting goals for other states. We are setting goals for the State of Florida, for the investor-owned utilities that you regulate. I believe that this is beyond the scope of what we are doing here.

With that said, I guess we are ready for a proffer.

COMMISSIONER EDGAR: Okay. We will mark as 166 -- Mr. Longstreth, a title?

MR. LONGSTRETH: Can I just clarify, we are, we're distinguishing between these two documents; is that correct?

COMMISSIONER EDGAR: I wasn't.

MR. LONGSTRETH: Because I believe that -- yeah. That's fine. We can do the whole thing and I'll simply ask the questions that I'd like to ask.

A short title would be Questions Submitted to Mr. Rufo.

COMMISSIONER EDGAR: Okay.

MR. LONGSTRETH: And could I just clarify for the record, with respect to the information contained in here, this was, was provided by Mr. Rufo. So there's no question that Mr. Rufo, I believe, can identify this. And I'd just ask him if he could do so at this time since he's available as to whether he recognizes the document and can authenticate it.

COMMISSIONER EDGAR: Mr. Rufo?

THE WITNESS: Yes.

BY MR. LONGSTRETH:

Q. Mr. Rufo -- okay.

MR. LONGSTRETH: I'd just like the record to reflect that this is Exhibit 126 as has -- 166.

COMMISSIONER EDGAR: 166.

MR. LONGSTRETH: Pardon me.

COMMISSIONER EDGAR: That's okay.

MR. LONGSTRETH: As has been proffered.

COMMISSIONER EDGAR: Yes. I'm sorry? Yes.

MR. LONGSTRETH: No further questions on Mr. Rufo's direct.

(Exhibit 166 marked for identification.)

COMMISSIONER EDGAR: Thank you. Thank you.

Ms. Brownless.

MS. BROWNLESS: Good morning, sir.

COMMISSIONER EDGAR: Good morning.

MS. BROWNLESS: Or ma'am.

COMMISSIONER EDGAR: Either way.

MS. BROWNLESS: At the very beginning I'd like to take a minute to hand out my confidential exhibits. Is that all right?

COMMISSIONER EDGAR: Okay.

(Pause.)

CROSS EXAMINATION

BY MS. BROWNLESS:

Q. Good morning, Mr. Rufo.

A. Good morning.

Q. Sorry. Can you look at the documents that have been provided to you in the yellow folder marked confidential?

A. I just looked through the cover sheets. They're lengthy, so I'll wait to peruse them further.

Q. That's fine. Were these documents provided in response to Florida Power & Light's -- to Florida Solar Coalition's request for production of documents to the Florida Power & Light Company Number 1 through 3? It's on the sheet.

MR. GUYTON: Madam Chairman?

COMMISSIONER EDGAR: Okay. Who's on first?

MS. BROWNLESS: If I may, I think I can cut to the chase, sir. These documents were provided by Florida Power & Light. Florida Power & Light, it's my understanding, has agreed to stipulate them into the record. And we've presented them as a package here in order to facilitate their confidentiality. My understanding is that Florida Power & Light has filed these documents with the Clerk and also filed the appropriate requests for confidentiality. We intend to

treat them as confidential documents. And all we're merely doing is trying to establish in the record that these documents being addressed are those.

COMMISSIONER EDGAR: Mr. Guyton?

MR. GUYTON: Madam Chairman, I agree with what Ms. Brownless said, except FPL has not filed a notice of intent as to these documents or a request for confidential classification. And that's because there was a private nondisclosure agreement in effect between the Florida Solar Coalition and FPL.

We will file a notice of intent. But if we could have the benefit of a bench ruling that these documents which we all stipulate are confidential, then we would be assured of them not becoming public record before we could file the necessary notice of intent.

COMMISSIONER EDGAR: All right.

Ms. Helton.

MS. HELTON: Maybe the better thing to do would be to by way of a ruling here today enter a protective order. I'm not comfortable making a confidential ruling at this point because it sounds like they have not yet been filed at the Commission and the staff hasn't had an opportunity to make a recommendation with respect to whether we agree that they're confidential or not.

But I'd also like clarification for purposes of the record, because I don't see any yellow highlighting, that all of the information contained in this folder should be treated as confidential today for purposes of the public hearing.

MS. BROWNLESS: Actually, I think the, and this is my understanding, Ms. Helton, that the sensitive parts of this document are the dollar figures, not the general contents of the document.

MS. CLARK: Madam Chairman, that's my understanding. And I just want to have the witness say yes, that it is the one page that has the dollar figures. Is that correct, Mr. Rufo?

THE WITNESS: For ease of the process, yes. I think there's proposal information here, which of course my preference is that that's confidential. But I don't want to make things more difficult than they need to be.

COMMISSIONER EDGAR: Ms. Clark?

MS. CLARK: Yes, Madam Chairman, it is the dollar figures, and I think Ms. Brownless has put that on a separate page.

COMMISSIONER EDGAR: Okay. So my understanding at this point in time is that Florida Power & Light is going to request a protective order. We will ask all parties to act accordingly.

Ms. Helton, anything additional?

MS. HELTON: Maybe you could just say for purposes of the record that you grant the protective order during, for the course of this proceeding, and by the close of the proceeding Florida Power & Light will file the appropriate documentation here at the Commission to ensure that we can maintain its confidentiality while we're going through that process.

COMMISSIONER EDGAR: Okay.

MR. GUYTON: We will be happy to do so.

COMMISSIONER EDGAR: Thank you. So with the understanding that Florida Power & Light will provide the appropriate documentation for their request and the treatment as discussed before the close of this hearing, which I'm still hopeful might be tomorrow, and all parties will act accordingly, so granted.

And I, my memory, this is consistent with the way we have handled these sorts of issues as they have arisen recently.

So with that, Ms. Brownless, thank you all for your patience, and you may move forward.

MS. BROWNLESS: Thank you.

BY MS. BROWNLESS:

Q. You are the Managing Director in the Consulting and Analysis Group of Itron; is that correct?

A. That's correct.

Q. And on Pages 2 to 4 of your testimony you list the companies for whom you individually and Itron have conducted energy efficiency potential or goals studies; is that right?

A. I'm sorry. Point me to that page again.

Q. It's on Pages 2 to 4, starts out on Line 7, organizations for which I have conducted EE potential or EE goal studies.

A. Yes. That's not a census. Those are some of the studies, yeah.

MS. HELTON: Madam Chairman, I'm sorry. I'm having a hard time hearing the witness.

THE WITNESS: Oh, I'm sorry. I'm trying not to be too loud. I said that that is not a census. Those are some of the studies. It was not intended to be a census.

BY MS. BROWNLESS:

Q. And by which you mean an exhaustive list?

A. Yes. A complete list.

Q. Okay. You list many utility companies in this group of clients for whom you've provided services.

A. That's correct.

Q. Including Florida Power & Light; is that correct?

A. That's correct.

Q. Okay. There's a wide variety of clients as well as a wide variety of size of companies for whom you have provided these studies; is that right?

A. That's correct.

Q. And in part is that why you were selected to provide the RFP potential study in this case?

A. I could not speak to that.

Q. Okay. Florida is the fourth largest state in the union and has a very, and has a very large economic electric customer base; is that correct?

A. Sounds reasonable.

Q. Okay. California and New York are larger, but Florida is one of the biggest; right?

A. That's my understanding.

Q. Will the fact that you've completed this study add to your credentials when applying for your next RFP?

A. Not materially.

Q. Okay. You don't believe that will -- well, will it be a study that you list when you prepare the next response to RFP?

A. Likely.

Q. Does working well with clients affect your ability to get another proposal with them?

A. Likely.

Q. And when I say working with clients, I mean responding to their needs and expectations.

A. Generally speaking, without parsing exactly what that means.

Q. Can you look at the supplement to POD Number 2 that you've been provided with, and that's the one-page sheet?

A. Okay. I apologize. So where am I looking at?

Q. It's on a separate one-page sheet, and it says at the top --

A. Oh, I found it.

Q. Okay.

MS. CLARK: I'd like to know, where are we looking, Ms. Brownless?

MS. BROWNLESS: It's the one-page sheet. It's in order. It's supplement to POD Number 2.

MS. CLARK: Okay. Oh.

MS. BROWNLESS: Do you have that, Ms. Clark?

MS. CLARK: Thank you.

MS. BROWNLESS: You're welcome.

BY MS. BROWNLESS:

Q. You've provided the total anticipated amount to be paid to you under your contract in this case; is that correct?

A. That's correct.

Q. Okay. And if I were to add these three separate figures together, I would get the sum for the achievable potential study, the technical potential study and whatever regulatory support you're providing; is that right?

A. That's correct.

Q. Which parts of this, these three steps have you completed?

A. We have completed the technical potential study, we have completed the estimates of achievable potential and we are in the midst of the regulatory support.

Q. Okay. And which pieces have you, if any, have you already been compensated for?

A. I would have to have my records of invoices submitted and paid in front of me, and I don't.

Q. Okay. Is it fair to say that in your contract you have milestones that would be completed and payments would be made upon completion of those milestones?

A. That's possible that the payment is being made that way. There are a variety of different ways that payments are made on a study like this.

Q. Well, could you take a minute and see if that's how you're --

A. I don't have the invoicing.

Q. You have the RFP there that sets out how payments will be made.

A. I believe this is a milestone-based payment project.

Q. Okay. All right. And some milestones have been completed; is that correct?

A. That's correct.

Q. Okay. In order to put the number in perspective, what percentage of the revenues generated by your department, the Consulting and Analysis Group, roughly does this represent?

A. 5, 10 percent.

Q. And I believe in previous workshops, Mr. Rufo, you've indicated that you were going to do a survey of FP&L's commercial and industrial customers with regard to energy efficiency measures; is that correct?

A. That's correct.

Q. Okay. Have you completed that survey?

A. That work was led by KEMA, our subcontractor, and the work is substantively completed at this point.

Q. Has there been a final document?

A. There is, to the best of my knowledge, a draft report that has been submitted to the utilities.

Q. And when you say utilities, was that done for the FEMA, FEECA utilities as a whole or just for Florida

Power & Light?

A. The activity was conducted for the FEECA utilities as a whole. The data collection was limited to three of the utilities, as I recall.

Q. And can you tell us which three?

A. I know that FPL, I'm pretty sure Progress. I think it was the -- I'd have to refer to documents. It's been a while. I wasn't the lead on that activity, so I don't want to misstate who the three are.

Q. Okay. But it's possible it was the three largest utilities; correct?

A. Yes.

Q. Which would have been FPL, Progress and TECO.

A. Correct.

Q. Okay. When you complete that type of study, do you have the ability to use the results of that study? In other words, is the, the data produced by that study proprietary to the people who purchase the study?

A. Yes. Often it is.

Q. Okay. And in this instance will Itron have the ability to use that data in its databases?

A. I don't know. I would guess not, but I don't know.

Q. Okay. Itron does develop data basis for

measures, do they not? For example, the cost of energy efficiency measures or demand-side renewable measures?

A. Yes. That's a normal part of our, expected part of our work is that we're constantly building our knowledge base of information on the cost and savings and other characteristics of demand-side measures.

Q. Okay. But you are unaware of whether the data that you gather will be able to be used in that type of database?

A. Yes. It's often the case that primary data collected for utility clients is their property, not our property.

Q. Okay. So there's an added value to Itron in being selected to do the study in that it gets access to -- it is allowed to enhance its database.

A. Well, no. That's in contradiction to what I just said.

MR. BURNETT: Madam Chair, I would object to relevance and materiality. I think we've been going ten minutes plus. I don't think I've heard a single question about this witness's testimony. At best this is a stumbling attempt to show bias. But I think she's had a lot of latitude, so I object.

COMMISSIONER EDGAR: Ms. Brownless.

MS. BROWNLESS: He is -- well, I would say a

couple of things.

First of all, I think that the rule is that for each witness they get one attorney and they get one person that acts as the person that objects. In other words, just as I cannot have another attorney come up and, if I'm asking questions, object, I don't believe that the likewise interested parties, for example, any of the IOU attorneys, can object. Ms. Clark is doing the questioning here, she is the designated representative, and she should be the person who makes the objections. Or another designated IOU attorney should be the person who makes the objections. But you can't double-team.

MS. CLARK: Madam Chairman, if I could just respond to that. I would agree with her under normal circumstances. But this is somewhat unique in the fact that we do have a witness here that provides a basis for all the studies that go on, and --

COMMISSIONER EDGAR: Okay. I can stop you right there. And I'm not sure what normal means actually, or what is normal. But that is, meaningless aside, I am going to allow Ms. Brownless to continue. And so you can see that as overruled or not, however you choose.

MS. BROWNLESS: I have one more question on

this line and we're moving on.

COMMISSIONER EDGAR: And I was going to say, but let's please, let's pick up the pace, if we can.

MS. BROWNLESS: Sure.

BY MS. BROWNLESS:

Q. So the bottom line here is that being perceived as having done a good job by the IOUs who hired you has both an immediate and future significant financial benefit for your firm; is that right?

A. I would just -- no. I'm not going to agree to that statement. No.

Q. Okay. In terms that it, you disagree that it has immediate financial benefit?

A. It's, that's -- well, I think that's a confidential matter, whether there's a financial benefit from conducting the study or not.

Q. You're not getting paid?

A. I didn't say that.

Q. Well, that would be an immediate financial benefit, would it not?

A. Not necessarily.

MS. BROWNLESS: We'll move on.

And I think what we would like to do is identify our exhibit. And that would be 167, I believe, Madam Chairman.

COMMISSIONER EDGAR: Yes. 167. Title?

MS. BROWNLESS: Itron Data. Maybe we should say Itron Contract Data.

COMMISSIONER EDGAR: Okay. Itron Contract Data.

(Exhibit 167 marked for identification.)

MR. GUYTON: And just so the record is clear, that is the confidential data that Ms. Brownless handed out --

COMMISSIONER EDGAR: Yes.

MR. GUYTON: -- and which we will request or file the appropriate request for.

COMMISSIONER EDGAR: Yes, sir. Yes, sir. Do you have further questions?

MS. BROWNLESS: Yes, ma'am. And I just would like to say that I, my understanding from FP&L's attorneys was that that had previously been requested, so I want the record to reflect that I certainly didn't intend to mislead the Commission on that.

COMMISSIONER EDGAR: We have worked our way through it.

BY MS. BROWNLESS:

Q. Can you look at Exhibit 147? And I think I provided that to you. That's an interrogatory exhibit.

A. Is that in the yellow folder?

Q. No, sir, that's not in the yellow folder. I can give you another one, if you didn't get it.

A. That would be great.

COMMISSIONER EDGAR: Yeah. Why don't you go ahead and do that?

THE WITNESS: It may be up here somewhere, but I don't want to waste folks' time. Thank you.

BY MS. BROWNLESS:

Q. Sure. And can you look at the response to Interrogatory Number 7?

A. Yes. I have it in front of me.

Q. Okay. And if you look at the very back of the document, the affidavits.

A. Yes.

Q. Okay. That was provided, answered by Michael Ting; is that correct?

A. That's correct.

Q. Okay. And is Mr. Ting associated with Itron and in your team?

A. Yes, he is.

Q. Okay. So this was answered by your folks; is that right?

A. That's correct.

Q. And I want to call your attention to the, let's see, it looks like it's the second sentence there.

It starts out, "For context." Do you see it?

A. Yes. Shall I read it to myself?

Q. No. You can read it to yourself. Yes, sir.

A. Okay.

Q. Are you ready? It indicates that less than 2 percent of existing homes have solar water heating at this time; is that correct?

A. That's what it says.

Q. Okay. And it also indicates that the technical potential estimates reflect a 75 percent market share for solar water heaters in the next ten years; is that right?

A. That's what it says.

Q. Okay. You also indicate in there that current supplies and contractors cannot meet that need; is that right?

A. I -- no, I don't see the words "cannot meet that need" in here.

Q. I believe it says that it would be extremely difficult and highly unlikely that the current solar water heater supply chains and associated contractors would be able to expand at such a rate greater than 300 percent growth in market activity per year for ten years. Is that right?

A. That's what it says, which is different than

what you said.

Q. Okay. How would you characterize that?

A. First let me say that I believe that this is immaterial. It's really having -- it has no effect on anything that we've done. So I would, I would like to ask what -- well, anyway, that's --

Q. Well --

A. This, this is really, I think, all going back to some maybe too informal conversation that may have occurred at a workshop. If you read the whole thing for context, I, I think the, this discussion here contextually occurred within a conversation about explaining the differences between technical potential and achievable potential, and there's nothing material here to our study.

Q. Well, it is material in the sense that doesn't your study and the DSM ASSYST model take into a fact what you consider to be practical constraints?

A. As it so happens, we have, we did not model achievable potential for this measure because it did not pass the screens. So it's, there's -- it's really -- we estimated technical potential. That's what we estimated.

Q. Okay. But the reference here is to talk about the difference between technical potential and actual

achievable potential; correct?

A. It's to -- that's referentially the context for this discussion, yes.

Q. Okay.

A. But I would emphasize it's not material in any way, shape or form to any result that we have produced.

Q. Because the solar technologies didn't get carried forward?

A. Yes. So there, we have not produced an achievable potential forecast for, for those technologies.

Q. Well, do you agree that, with the statements you made at the December 15th workshop?

A. Well, number one, I didn't make the statements. No, I wouldn't agree 100 percent. I would, I would probably craft, if I had to go on the record on this topic, I would write a treatise on it and it wouldn't, it wouldn't be something like this.

Q. Okay.

A. I think the only point that was trying to be made here is that technical potential is a theoretical snapshot. And, you know, if one waves their magic wands and says I'm going to convert every piece of capital equipment to another piece of capital equipment in a year or a day, the market can't do that. And in

achievable potential, one of the factors considered is the natural turnover of stock and at times the availability of the market to deliver a service. Now as it turns out, we've done nothing in our work in this study to constrain potential based on any assumptions about an inability of the market to provide a service or product.

Q. For any of the energy efficiency measures that you analyzed?

A. Yes. Not explicitly, no.

Q. But implicitly in your model; correct?

A. Well, no, not given the data that we've used here.

Q. In other words, not given the measure inputs, not given the measures that were evaluated?

A. I don't know. Now we're -- no. No, I would not say it that way. No.

Q. Well, just so I understand --

A. I guess I'll wait for you to ask some more questions, because I don't really know where you're going with this. But -- so maybe let's try to get more substantive and I'll try to give you a response.

COMMISSIONER EDGAR: Well, let's stick to the questions.

THE WITNESS: I'm trying, but I -- let's go

back --

COMMISSIONER EDGAR: Okay. Ms. Brownless --

THE WITNESS: -- to the question. What is the question?

COMMISSIONER EDGAR: Mr. Rufo, Mr. Rufo, let her ask the questions and try to answer them, please.

Ms. Brownless.

BY MS. BROWNLESS:

Q. In this docket GDS has recommended allocating 24.5 million for the next five years to incent the development of solar water heating and other solar technologies. Is that a measure that would tend to encourage more vendors to enter the market than what you've indicated here?

MS. CLARK: Madam Chairman?

COMMISSIONER EDGAR: Ms. Clark.

MS. CLARK: I would object to this line of questioning. It's outside the scope of his testimony. And as he said, these measures did not move to the achievable portion of the analysis, and it's outside the scope of his testimony.

COMMISSIONER EDGAR: Sustained.

BY MS. BROWNLESS:

Q. Can you turn to the previous page in that interrogatory, Mr. Rufo, Interrogatory Number 6?

A. Number 6? Yes, I have it.

Q. Okay. And can you verify that this was also answered by Mr. Ting, I believe?

A. Yes.

Q. Okay. And that indicates that when you were doing the technical potential study for the solar measures -- and they were included in the technical potential study; correct?

A. You're referring to the solar domestic hot water?

Q. Yes, sir.

A. Yes.

Q. Okay. That the measure cost that you used was $3,850 for the 40-gallon storage solar heaters?

A. Yes.

Q. Okay. And the measure savings are as listed there?

A. That's my understanding.

Q. Okay. And I would use the measure savings to develop the kWh savings for -- associated with that measure; correct?

A. Given the base consumption value, yes.

Q. Okay. Did you use this number in all technical potential studies for residential solar hot water heaters?

A. When you say all, what --

Q. For each investor-owned utility.

A. That's my understanding, that that value was used for all the utilities.

Q. Okay.

A. But I'm not 100 percent sure of that.

Q. Okay. How did you develop this measure cost?

A. My -- I did not develop this measure cost value. Mr. Ting did.

Q. But you're here today to talk about the technical potential.

A. Yes. My understanding is that that value was developed from several different data sources, I believe including -- I'm trying to remember now. I don't remember precisely the data sources that Mr. Ting used. But I know he looked at, he would have looked at data from the Florida Solar Energy Center. He would have looked at data that the utilities provided from their program experience. He may have looked at data from other programs.

Q. Other programs meaning other states?

A. Other solar programs.

Q. Right. Like in California, Texas, New Mexico?

A. From around the country. Yeah. Would have wanted to, would have hoped that he would have looked at

real, you know, actual invoiced costs in the real world.

Q. Okay. Both in the real world in Florida and other markets?

A. Yes. Preferably in Florida.

Q. Okay. My understanding is that this basic measure cost for each type of solar technology was developed by your firm and then presented to each IOU for their input and comments. Does that sound right?

A. I believe the process was that we, we sent the measure, all the measure input data for review by the utilities, and I believe the Collaborative at that time. I'm not 100 percent sure.

Q. Okay.

A. So that's a normal procedure in these studies is we develop draft estimates, we show them to the client, they provide feedback, and we may or may not make any, any changes based on that feedback.

Q. Okay. You prepared separate technical potential studies for each IOU; correct?

A. Yes.

Q. Okay. Did each IOU with regard to the price of solar technologies have the ability to adjust the measure cost?

A. I don't know. Not -- that doesn't -- I don't think so, but I don't know.

MS. BROWNLESS: Okay. I'm trying to make sure I won't get in difficulty here, Commissioner. If you can give me just a minute.

(Pause.)

BY MS. BROWNLESS:

Q. How long have you been analyzing and preparing measure cost data?

A. Since 1992.

Q. Okay. And --

A. Well, I would say since 1987. Okay.

Q. A long time; right?

A. Yes.

Q. Thirty years? Is that right? Twenty years.

A. No. Yeah.

Q. My addition is poor this morning.

A. Don't burden me with that last decade, please. Yeah, 20 years more or less.

Q. Okay. And during that period of time has the price of solar technology decreased?

A. In real terms or nominal dollars?

Q. Real terms.

A. You know, I don't know, honestly.

Q. Okay.

A. And you're referring to solar domestic hot water?

Q. Uh-huh.

A. Yeah. I'm, I'm not positive. I haven't, I haven't done a study on that.

Q. With regard to solar PV, do you have an opinion about that, whether it's decreased in the last 20 years?

A. I would say in the last 20 years, yes, there's been a decrease in solar PV costs.

Q. Would you expect the price of solar PV technology to decrease in the next five years?

A. Expect? No. I guess I don't have an expectation one way or the other. I might have a -- yeah. I -- that would -- I'd have to look at a lot of factors to proffer a forecast of PV prices.

Q. Were incentives available for this technology, would you assume that that would assist in decreasing the price of solar PV?

MS. CLARK: Madam Chairman, I've been patient. I think she continues to ask questions that are outside the scope of his testimony. I would ask that -- at this point I'm going to object to the line of questions that she has.

COMMISSIONER EDGAR: Ms. Brownless, it does seem that we're wandering a bit far afield again.

MS. BROWNLESS: Thank you.

BY MS. BROWNLESS:

Q. Did you do the economic potential tests for OUC and JEA?

A. Itron did.

Q. Itron. Yes, sir. And for those utilities, OUC in particular has incentives for solar hot water and solar PV systems. Did you use -- how did you calculate the incentive level that was going to be used in the Participant Test, the RIM Test for those utilities?

A. It's my understanding that we never got to that step because the technologies didn't pass the RIM and TRC screens.

Q. Okay. Well, in the RIM Test don't you have to include incentives? And I could show you my RIM chart, if that would help.

A. Yeah.

Q. I've got a RIM chart, sir.

A. Incentives are part of the RIM calculation, yes.

Q. Okay. So you, it's your testimony that you don't know how the incentives were calculated for the RIM Test?

A. I had a different team of analysts conducting that analysis, so that's -- yeah. I mean, you don't have to have incentives to calculate a RIM test.

Q. Okay. So you don't know whether --

A. You can fail on RIM before you apply incentives.

Q. Okay. I can just cut to the chase here.

A. Okay.

Q. Because you are not the person that was directly involved in conducting the economic potential analysis for OUC and JEA, you don't know the details of how the --

A. No. It is my understanding at this time that I believe the measures failed without the application of the incentives. But I could try to confirm that, but I can't in this second confirm that with, right now with 100 percent certainty. But that's my understanding. I've seen many measures fail the RIM Test based on the relationship between average and marginal costs.

Q. Okay. And just so we can be clear for the record, in other words, based on the relationship of the costs associated with the avoided unit in the numerator and the revenue loss in the denominator.

A. Yes.

Q. Okay. And to the extent that we've discussed in this hearing calculations of the RIM Test and the TRC Test for OUC and JEA, your understanding is that that's how those numbers would have been derived?

A. It's, it -- that's my understanding.

Q. Okay.

A. It's, it's possible that an approach analogous or identical to what the IOUs described was also used, but I don't believe so.

Q. Okay.

A. But we could get confirmation of that, if necessary.

Q. Well, that's fine. We're moving along here.

A. Okay.

Q. The cost figure that we discussed for the solar water heating, the $3,850 cost, that was a standalone cost. In other words, that was, it did not reflect any competition with other DSM measures, did it? I mean, it was just a --

A. The cost did not, no.

Q. I'm sorry?

A. The cost did not. That was your question, was whether the --

Q. Yes. Right.

A. That's correct.

Q. So there weren't any adjustments for competing measures in the standalone figure used in the technical potential study?

A. Well, we usually do two calculations. One is

a standalone and one is part of a supply curve, conservation supply curve, in which measures are stacked by least cost. And in that analysis there can be an incremental cost, an incremental savings adjustment made based on where a measure falls in the stacking order. So it may have been that this measure in that supply curve analysis had an incremental cost and an incremental savings calculated relative to another technology, like a heat pump water heater, for example.

Q. Okay.

A. I don't know in this particular case whether there was an incremental cost in savings, if it fell behind a heat pump water heater and, if so, if it had, if that calculation was made or not.

Q. Okay. So you would have started, just so I understand your analytical framework, you would have started out developing standalone costs and standalone savings, and then they may or may not have been adjusted depending upon where they fell in the rank.

A. Correct.

MS. BROWNLESS: Thank you very much, Mr. Rufo.

COMMISSIONER EDGAR: Thank you. Are there questions from staff?

MS. FLEMING: No questions.

COMMISSIONER EDGAR: Any questions from the

bench for this witness? No? Okay.

Are there questions on redirect?

MS. CLARK: Yes, ma'am, Madam Chairman.

REDIRECT EXAMINATION

BY MS. CLARK:

Q. I believe this was a -- Mr. Rufo, I want to take you back to yesterday where Mr. Longstreth asked you some questions about your Exhibit MR-1. And my question to you, do any of the jurisdictions in which the studies were performed listed there require consideration of free riderships as the Commission's DSM rule does?

A. No.

Q. Okay. Ms. Brownless asked you a question regarding Interrogatory 6 just a couple of minutes ago.

A. Can I just clarify? I want to just say my no was within the context of potential and goal setting.

Q. Thank you. Regarding Interrogatory Number 6, this was to Florida Power & Light, with regard to the question of the measure costs, and you have listed there 3850. In your view, is that an aggressive cost? Are we likely to find in the market that the costs may be higher than that?

A. Yeah. I think that there's, there are cost observations out there that are, that are higher than

that. And, you know, I think that's a reasonable, reasonable value maybe, for -- yeah, I've seen, I've seen higher costs than that as well.

Q. Going back to the question on your analysis that KEMA did for you on the commercial. That has been completed and it's just that the final report has not been issued; is that correct?

A. Yes.

MS. CLARK: Madam Chairman, if I can have one moment, I need to find something.

COMMISSIONER EDGAR: Yes.

(Pause.)

BY MS. CLARK:

Q. You did get questions on the use of a payback period. I just wanted to understand from you that a use of a payback period as a threshold is not an unreasonable proxy for free ridership, is it?

A. I think when conducting a potential study like this in which there is a lot of data, a lot of measures, a lot of market segments, seven utilities, to -- there aren't -- we're trying to use the data as much as possible in that, in a consistent way in the study. So looking for a quantitative, a simple quantitative way to address that question, payback is, is, is one of the ways that, that one can do that.

Q. Now Ms. Brownless had asked you some questions about the RIM calculation. Is it your understanding that your method that you used for the three utilities, meaning FPUC, OUC, and JEA, were consistent with those used by the IOU and consistent with the manual?

A. Yes.

MS. CLARK: Madam Chairman, I may be done, but I want to check on something.

(Pause.)

I have two more questions.

COMMISSIONER EDGAR: Go right ahead.

BY MS. CLARK:

Q. Mr. Rufo, if you would look at what has been marked, I believe, as Exhibit 165. My question to you, is this a quantification of the naturally occurring measures?

A. My documents aren't marked, so we're referring to the, the big tables?

Q. Yes.

A. The naturally occurring tables?

Q. Yes.

A. Okay.

Q. And these are the naturally occurring measures excluded from the two-year payback; is that correct?

A. Yes. That's naturally occurring for the

measures screened on the two-year payback.

MS. CLARK: Madam Chairman, that's all we have.

COMMISSIONER EDGAR: Okay. Let's go ahead and do these exhibits.

Okay. I'm seeing no exhibits on direct.

MS. CLARK: Madam Chairman, yes. I would like to move Mr. Rufo's exhibits. I believe they were Exhibit 65 through 75.

COMMISSIONER EDGAR: 65, let me get there. Oh, there they are. Okay. Seeing no objection, Exhibits 65 through 75 will be entered into the record.

(Exhibits 65 through 75 admitted into the record.)

Okay. That brings us to 165. Mr. Longstreth, I believe that was you.

MR. LONGSTRETH: Correct. We would move that to be entered into the record.

COMMISSIONER EDGAR: Okay. Any objection?

MS. CLARK: No objection.

COMMISSIONER EDGAR: No objections. 165 will be entered.

(Exhibit 165 admitted into the record.)

That brings us to 167.

MS. BROWNLESS: We would like to move our --

167 is also -- oh, I'm sorry. Yes, we would like to move that into the record, yes, ma'am.

COMMISSIONER EDGAR: Which has the potential confidential information in it.

MS. BROWNLESS: Yes, ma'am.

COMMISSIONER EDGAR: Okay.

MS. CLARK: We don't object to that, Madam Chairman.

COMMISSIONER EDGAR: Okay. Seeing no objection, and that will be handled as we have discussed previously, entered into the record per our discussion.

(Exhibit 167 admitted into the record.)

Okay. Now my understanding is that there has been a request for Mr. Rufo to remain on the stand and present his rebuttal. Is that correct?

MS. CLARK: Yes. Madam Chairman, if we could take a break and shift to his rebuttal.

COMMISSIONER EDGAR: Okay. Is there any objection to taking that up now? Okay. Then, as good a time as any. Let's give Mr. Rufo a stretch whether he wants it or not, and we will come back at 20 after and begin then. We're on break.

(Recess taken.)

We're going to get started again and we are back on the record. Before we move into Mr. Rufo's

rebuttal testimony, my understanding is that we have what had been a potential late-filed exhibit that we can go ahead and take a look at; is that correct?

MR. BURNETT: Yes, ma'am. Progress Energy Florida owed information that was marked as Late-Filed Exhibit 150, and I have circulated that and provided it.

COMMISSIONER EDGAR: Is that the -- oh, it says Exhibit Number 150 right at the top.

MR. BURNETT: Yes, ma'am.

COMMISSIONER EDGAR: All right. Wonderful. Thank you.

Okay. So has everybody had a chance to look at this? Any objections?

MR. LONGSTRETH: Can we move it into the record?

COMMISSIONER EDGAR: We can do that right now as long as there's no objection we need to take up first.

Hearing none, Exhibit 150 will be moved in.

Thank you, Mr. Burnett.

(Exhibit 150 admitted into the record.)

MR. BURNETT: Yes, ma'am.

COMMISSIONER EDGAR: Ms. Clark?

MS. CLARK: Thank you, Madam Chairman.

was called as a rebuttal witness on behalf of all the FEECA utilities and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. CLARK:

Q. Mr. Rufo, at this time we are going to be referring to your prefiled rebuttal testimony. And my question to you is have you prepared and caused to be filed 33 pages of prefiled rebuttal testimony in this proceeding?

A. Yes.

Q. Do you have any changes or revisions to this prefiled rebuttal testimony?

A. No, I do not.

Q. If I asked you the same questions contained in your prefiled rebuttal testimony, would your answers be the same?

A. Yes, they would.

MS. CLARK: Madam Chairman, I would ask that the prefiled rebuttal testimony of Mr. Rufo be inserted into the record as though read.

COMMISSIONER EDGAR: The rebuttal testimony that was prefiled by this witness will be entered into the record as though read.

BY MS. CLARK:

Q. And, Mr. Rufo, have you also provided some exhibits in your rebuttal testimony?

A. Yes.

MS. CLARK: Madam Chairman, I think those prefiled rebuttal exhibits have been marked as Exhibits 110 through 122.

(Exhibits 110 through 122 marked for identification.)

COMMISSIONER EDGAR: Thank you.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS

REBUTTAL TESTIMONY OF MIKE RUFO

DOCKET NO. 080407-EG (Florida Power & Light Company)

DOCKET NO. 080408-EG (Progress Energy Florida, Inc.)

DOCKET NO. 080409-EG (Tampa Electric Company)

DOCKET NO. 080410-EG (Gulf Power Company)

DOCKET NO. 080411-EG (Florida Public Utilities Company)

DOCKET NO. 080412-EG (Orlando Utilities Commission)

DOCKET NO. 080413-EG (JEA)

Q: Please state your name, title and business address.

A: My name is Mike Rufo. I am Managing Director in the Consulting and Analysis Group at Itron, Inc. (Itron), 1111 Broadway Street, Suite 1800, Oakland, California 94607.

Q: Did you previously submit testimony in this proceeding?

A: Yes, I did.

Q: What is the purpose of your rebuttal testimony?

A; The purpose of my rebuttal testimony is to respond to points raised in the testimonies of witnesses Wilson and Mosenthal on behalf of the Natural Resources Defense Council (NRDC)/the Southern Alliance for Clean Energy (SACE) and of witnesses Spellman and Guidry, GDS & Associates (GDS), on behalf of the Staff of the Florida Public Service Commission (FPSC).

Q: Are you sponsoring any rebuttal exhibits in this case?

A: Yes, I am sponsoring Rebuttal Exhibits MR-12 through MR-24, which are attached to my rebuttal testimony.

TECHNICAL POTENTIAL

Q: Are the technical potential estimates developed by Itron for the Florida Energy Efficiency & Conservation Act (FEECA) utilities comprehensive and do they represent reasonable starting points for assessing economic and achievable potential from utility programs?

A: Yes. The technical potential estimates developed for the FEECA utilities are comprehensive and represent reasonable, expected value estimates of the technical potential for energy and peak demand savings from which to then assess the economic and achievable potential from utility programs. These technical potential estimates incorporated calibrated, bottom-up end-use baselines developed using the best available data in Florida and other jurisdictions and cost and savings data for 267 unique measures, including 49 unique measures not previously included in technical potential studies conducted by Itron for other clients.

Q: Do you agree with witness Spellman's assertion that the baseline estimates developed by Itron significantly underestimate actual electricity sales and therefore result in systematic underestimates of energy efficiency potential (Spellman Testimony, p 23, lines 9-11; p 24, lines 1-3)?

A: No. In fact, Itron's bottom-up baseline estimates are very well calibrated to actual historical total sales in each of the FEECA utilities. As shown in the table provided below, the difference between Itron's bottom-up baselines and actual total sales by the

FEECA utilities is insignificant and thus does not result in systematic underestimation of energy efficiency potential in Florida.

Bottom-Up[1] vs. Actual Sales[2] (GWh)	FPL	PEF	Gulf	TECO	JEA	OUC	FPU	Total
Residential	52,910	20,645	5,148	8,092	5,274	2,343	334	**94,745**
Commercial	34,320	11,544	3,783	8,660	3,381	3,038	325	**65,051**
Industrial	5,493	2,670	886	1,433	1,056	205	134	**11,877**
Out of Scope Sectors	7,946	8,199	1,025	1,168	3,000	636	9	**21,983**
Total Bottom-Up Sales	**100,669**	**43,058**	**10,841**	**19,353**	**12,710**	**6,222**	**801**	**193,655**
Actual Total System Sales (2007)	**105,415**	**39,282**	**11,521**	**19,533**	**12,751**	**6,079**	**813**	**195,393**
Difference	***-4.5%***	***9.6%***	***-5.9%***	***-0.9%***	***-0.3%***	***2.4%***	***-1.4%***	***-0.9%***

The basis for witness Spellman's claim appears to stem from attempting to compare the residential, commercial, and industrial sales values as reported in the latest Ten-Year Site Plans (TYSPs) filed by each FEECA utility filed in April of this year with the bottom-up baselines developed by Itron.[3] However, as Itron described in detail in response to Staff's Third Set of Interrogatories to the FEECA utilities (*see* question 18, Rebuttal Exhibit MR-12),[4] such direct comparisons are invalid for the following reasons.

The methods used by Itron to classify customers as commercial or industrial are fundamentally different from those used by the FEECA utilities in their TYSPs. As described in Chapter 3 of each FEECA utilities' technical potential report, Itron used customer-specific Standard Industrial Classification (SIC) data (as made available from

[1] Bottom-up baseline values are same as those reported in Table ES-1 and Figure 2-2 in each FEECA utility's technical potential report.

[2] Actual sales data are "Total Sales to Ultimate Customers (GWh)" taken from Schedules 2.2 and 2.3 of each FEECA utility's 2009 TYSP. Note that these values exclude sales for resale and utility line losses in order to be strictly comparable to Itron's bottom-up baseline estimates.

[3] Florida Public Utilities Company (FPUC) is a non-generating utility and does not file a Ten-Year Site Plan with the FPSC. The sales data shown above were taken from data provided by FPUC to Itron for this study.

[4] The response of Progress Energy Florida, Inc. (PEF) to question 18 of Staff's Third Set of Interrogatories is provided as an example in MR-12. The other FEECA utilities received the same question and gave similar responses.

each FEECA utilities' customer information systems) as the basis for classifying customers as commercial or industrial. In the TYSPs, the FEECA utilities use customer rate class to categorize customers as either commercial or industrial, as has been standard practice in TYSP filings. This is a common misunderstanding of customer classifications with respect to potential studies. Itron always makes significant efforts to segment customers into true commercial and industrial segments in its potential studies as all of the end-use and measure data to assess potential are developed based on true customer business types not rate classes, which reflect customer size but include both commercial and industrial accounts. A rate-class based analysis of potential would fundamentally misalign bottom-up estimates of potential and utility sales. We spend a great deal of effort on all of our potential studies to disaggregate true commercial and industrial sales, using both utility SIC and North American Industry Classification System (NAICS) classifications when available and secondary business type classifications like Dun and Bradstreet (ZAP data). This commercial and industrial disaggregation is then reconciled to the combined rate class based total nonresidential sales.

In addition, the bottom-up baselines developed by Itron specifically reflect the end-use sectors that were within the analytic scope of the technical potential study and excluded agriculture, construction, transportation, communications, utilities, outdoor and street lighting, and temporary service accounts. The shares of total 2007 actual sales to out-of-scope sectors are shown explicitly in Figure 2-2 in each of the FEECA utilities' technical potential report.

Given these two key differences between Itron's bottom-up baselines and the historical sales data reported for commercial and industrial customers in the utilities'

TYSPs, one must first aggregate Itron's bottom-up baselines for residential, commercial, and industrial customers with sales to the "out of scope" sectors before comparing these totals to "Total Sales to Ultimate Customers" as reported in each utility's TYSP.

Witness Spellman did not acknowledge nor account for these key comparative issues when making the statement that Itron's baselines systematically underestimated total historical sales and did not provide evidence that his claims are accurate or material.

Q: Do you agree with witness Spellman's assertion that Itron's technical potential study lacked the necessary documentation, transparency, and reproducibility required to produce reasonable, defensible estimates of technical potential savings in Florida?

A: No. Itron strives to deliver highly documented, transparent, reproducible, and defensible work products for all its clients. Itron's previous potential study reports have never been criticized by regulators for lacking documentation and transparency, and the technical potential reports produced for the FEECA utilities reflect that same level of documentation and transparency. In fact, documentation and transparency have been key features of Itron staff's potential study reports and a differentiating factor in our selection to conduct potential studies for over two decades. Itron staff pioneered development of systematic methods to develop and organize data to enable more efficient review of our model inputs and results. Our reports provide detailed discussions of utility-specific data sources, the data development process, and key assumptions and include a comprehensive list of key data source citations (Chapter 6) and comprehensive appendices of the final end-use baseline and measure data inputs (Appendix B), the non-

additive measure results (Appendix C), and the final supply-curve adjusted measure results (Appendix D).

Itron also provided witnesses Spellman and Guidry, both formally and informally, with additional measure-specific documentation and detailed explanations and demonstrations of the data development processes and model mechanics to assist in their efforts to review and verify Itron's data and methods. Beginning on March 30, 2009, GDS initiated an informal request for detailed information on Itron's data, methods, assumptions, and modeling equations. In response to this request, Itron organized two conference calls (April 10 and 15, 2009) during which Itron provided both written and verbal responses to 41 itemized questions provided by GDS. Itron also helped GDS refine and correct the spreadsheets GDS had developed to reproduce Itron's technical potential results from the detailed data provided in the appendices to Florida Power & Light Company's (FPL) technical potential report. Based on communications between Itron and GDS following this exercise (*see* Rebuttal Exhibit MR-13), Itron believed that there were no outstanding issues related to GDS' attempts to reproduce Itron's results and received no further communications from GDS in that regard, which runs counter to witness Spellman's statement that GDS was not able to reasonably replicate Itron's technical potential estimates (Spellman Testimony, p 23, lines 7-8).

Witness Spellman inaccurately states that the documentation was not provided for the weather-based adjustments made to the baseline consumption and demand estimates for weather-sensitive end uses in the residential sector (i.e. heating, air conditioning, and ventilation) (Spellman Testimony, p 22, lines 21-22). In fact, Itron provided complete documentation of these weather-based adjustments in response to Staff's Third Set of

Interrogatories along with the weather adjustment factors themselves (*see* question 16, Rebuttal Exhibit MR-12). Witness Spellman did not acknowledge or provide any evidence for invalidating that documentation in his testimony, and thus there is no basis for this statement.

Witness Spellman also incorrectly claims that the sources of the baseline saturation data were not provided in the technical potential studies (Spellman Testimony, p 22, lines 23-24). In fact, sections 3.3.1, 3.3.2, and 3.3.3 of each FEECA utility's technical potential report provide very specific source citations for the baseline equipment saturation estimates developed by Itron for residential, commercial, and industrial customers. Again, witness Spellman has not acknowledged nor attempted to specifically invalidate that documentation in his testimony.

It is important to also note that Itron provided additional detailed documentation and explanation of data development and modeling methods beyond the activities described above. In response to question 20 of Staff's Fifth Set of Interrogatories to FPL, Itron provided measure-specific source documentation of measure costs, energy savings, peak demand savings, and expected useful life for the top 20 energy saving measures in each sector (*see* Rebuttal Exhibit MR-14). In response to Staff's First Request for Production of Documents to Itron, Itron provided GDS with a six hour live walk-through of Itron's data development processes and modeling methods, following an agenda developed by GDS (*see* Rebuttal Exhibit MR-15) and using the actual spreadsheets used to derive the residential HVAC end-use baselines, the residential and commercial end-use load shapes, and the supply-curve calculations and results. Itron also demonstrated the functionality and key equations in DSM ASSYST's penetration module using the actual

model files for FPL's residential and commercial sector achievable potential forecasts. At the conclusion of this session, Itron explicitly asked for and received verbal confirmation from GDS (in the presence of FPSC Staff) that Itron had adequately addressed the key knowledge gaps that GDS was hoping to fill regarding Itron's methods and data sources. Again, witness Spellman did not acknowledge or attempt to invalidate Itron's responses to these discovery requests in his testimony, and thus there is no basis to claim that Itron's work has been anything but transparent.

It appears that at the core of witness Spellman's claims related to documentation and transparency is a subjective preference for documentation that focuses on providing one-to-one linkage between every individual data input (of which there are thousands in this study) and an individual secondary source. The conclusion appears to be that documentation approaches that differ from witness Spellman's preferred approach necessarily introduces uncertainty into the analysis; and therefore any analysis, no matter how intrinsically accurate the empirical inputs and results, is by nature highly uncertain if each of thousands of input data points are not linked to specific sources. While this argument may have some merit in theory, it fails in practice for three important reasons.

First and foremost, the assumption that there is a perfect or optimal secondary source for every data input in a potential study such as this one, with thousands of measure-segment combinations and dozens of parameters per measure-segment, is flawed. For example, data that is derived from a specific report does not necessarily mean that that data is reliable, robust, and appropriate to use for other analysis purposes. Indeed, many secondary sources in the literature related to end use consumption, measure costs, savings, and other key parameters contradict each other. Analysts can introduce

just as much uncertainty choosing to rely on particular secondary sources over others (if they have inaccurately assessed the quality of the available data or, worse, been unduly influenced by preconceived notions or biases) as they can using input values based on professional judgment (in cases where the available data varies widely, is not strictly comparable, or is outdated). Many existing secondary sources in the field are limited or weak because it is difficult in practice to measure much of the data needed for potential studies. This is the case, for example, for end-use consumption (since consumption is measured for the population only at the building level), measure costs (there is a paucity of rigorously derived incremental cost data in the industry), and measure savings (although relatively straightforward to empirically observe for some measures, it can be extremely difficult for others, and thus require estimation approaches). As a result, the quality of the secondary literature in the energy efficiency field is highly variable. Thus, tying a parameter to an individual source may do nothing to increase validity if that source is itself flawed. Because of the many well known weaknesses in individual studies in the efficiency industry, Itron staff is trained to focus on meta-analysis in which they carefully assess the strengths and weaknesses of all available sources related to key parameters. Our expertise in conducting potential studies is fundamentally tied to our ability to develop best estimates of parameters across all available sources, oftentimes in spite of their weaknesses. That said, Itron makes significant efforts to direct reviewers and users of its potential studies to key sources that we have reviewed and used in our analyses; which brings us to the second reason why witness Spellman's arguments related to documentation fails in practice.

The second reason is that even if one agreed with witness Spellman's theoretical ideal with respect to sourcing each and every parameter to individual sources, doing so would be impractical within the time and budget constraints of these types of studies. This is particularly the case given the fact that this level of sourcing would not in and of itself increase the accuracy of the study given, as noted above, the limitations of the individual sources and need for experience and expertise to develop estimates that cut across sources. In fact, the time necessary to source at this level of detail could likely reduce the accuracy of the results due to reduction in staff time available to actually assess the sources, develop best estimates, accurately integrate the data across parameter types, accurately set up the data bases, conduct all of the necessary model runs, and, critically, conduct quality control of model results, which leads us to the third reason why witness Spellman's arguments related to documentation fails in practice.

The third reason is that the most critical question in assessing estimates of technical potential is "are the baseline and measure data themselves reasonable?" The baseline and measure data used in the technical potential study reflect the best available data given the time and resources available. Witness Spellman's testimony provides no direct evidence to demonstrate that baseline and measure data do not reflect the best available data in Florida or evidence that any particular parameter is wrong or inaccurate as demonstrated by presentation of superior sources or other evidence. The focus should be on the reasonableness of the parameter values themselves. A critical skill set upon which Itron is and should be judged is whether our input data and modeling approaches are accurate and unbiased. As noted above, there is uncertainty around many of the parameters in any potential study due to limitations in the data in the energy efficiency

field (as is the case, of course, in most other fields). The key question, however, is whether analysts make purposefully conservative or optimistic assumptions in the face of these uncertainties or whether they have the training and expertise necessary to take an expected value approach in which they make unbiased estimates on average. Itron staff is trained to avoid systematic bias in developing the data and models used in our potential studies. This increases the likelihood that any errors that do remain in individual parameters are random and unbiased in aggregate effect. All of the parameters necessary to assess the accuracy of or technical potential results have been provided to GDS through the study reports, our responses to interrogatories and production of document requests, and our provision of additional information and training as requested informally.

Q: Do you agree with witness Wilson's assertion that a reasonable proxy for the technical potential of energy efficiency savings in the four end-use sectors not considered in the technical potential study is the estimated technical potential of the industrial sector (Wilson Testimony, p 28)?

A: No. There is little to no evidence in the literature or offered by NRDC/SACE that the end-use consumption and energy efficiency opportunities in four end-use sectors not considered in the technical potential study – the Agriculture, Construction, Outdoor/Street Lighting, and Transportation, Communications, and Utilities (TCU) – are sufficiently similar to those in the industrial sector in Florida (or any other jurisdiction) to justify using bottom-up estimates of industrial technical potential as a reasonable proxy.

Q: Do you agree with witness Mosenthal's assertion that Itron's technical potential study does not consider synergies between energy efficiency measures that result in "deep" savings opportunities?

A: No. Witness Mosenthal incorrectly claims that Itron's technical potential study only accounts for interaction between measures that reduce marginal energy savings and ignores measure interactions that can result in "deeper" savings opportunities (Mosenthal Testimony, p 11, lines 1-3; p 11 footnote 6). In fact, as described in response to Staff's Third Set of Interrogatories to the FEECA utilities (*see* question 12, Rebuttal Exhibit MR-12), the commercial new construction analysis explicitly considers measures based on integrated design approaches for key end uses such as lighting and HVAC that witness Mosenthal claims were excluded from the technical potential study.

Q: Do you agree with witness Spellman's assertion that the residential and commercial analyses wrongfully excluded the six residential measures and 24 commercial measures listed on page 25 and Table 2 of his testimony?

A: No. Itron provided its rationale for excluding the six residential measures and 24 commercial measures cited by witness Spellman in response to Staff's Third Set of Interrogatories (*see* questions 13-14, Rebuttal Exhibit MR-12). Again, witness Spellman did not acknowledge or present any arguments against Itron's rationales for excluding these measures. Additionally, witness Spellman did not acknowledge or provide any assessment of the measures included in the technical potential studies for the FEECA utilities that have not been previously assessed in other potential studies in other jurisdictions.

Q: Do you agree with witness Spellman's assertion that these exclusions result in significant underestimates of technical, economic, and achievable potential?

A: No. Witness Spellman states that the six residential measures not included in the study account for 19.6% of the maximum achievable potential in the residential sector in a study GDS recently completed for the New Hampshire Public Utilities Commission. The implication is that these measures should then account for roughly the same share of achievable potential in Florida's residential sector. However, this claim ignores the fact that nearly 90% of that potential is from "smart strips" and refrigerator recycling. As described in Itron's response to Staff's Third Set of Interrogatories (*see* question 13, Rebuttal Exhibit MR-12), Itron did not consider "smart strips" in its analysis for the FEECA utilities because the savings produced by this measure overlap with those produced by the Energy Star home electronics measures already included in the study. Refrigerator recycling was not included in the study because of strong evidence in the evaluation literature which indicates that this measure often has very high levels of free ridership and that these savings will occur over time as older refrigerators are replaced naturally with newer units that meet increasingly stringent federal efficiency requirements.

By his own admission, the 24 commercial measures cited by witness Spellman "may not break into the current list top twenty energy saving measures" (Spellman Testimony, p 26, line 13). However, witness Spellman offers no quantitative evidence or analysis to prove that these exclusions actually do result in any significant underestimation of technical potential in Florida's commercial sector.

Q: Do you agree with witness Wilson's assertion that building retrocommissioning, 19 Season Energy Efficiency Ratio (SEER) heat pumps, and variable-speed pool pumps were wrongfully excluded from the technical potential study?

A: No. In the case of retrocommissioning, Itron believes that the chiller tune-up, direction expansion (DX) tune-up, air handler optimization, and emergency management system (EMS) optimization measures included in the analysis, in addition to the high-efficiency replace-on-burnout measures for chillers, packaged DX units, air handler motors, and lighting, adequately represent the savings potential associated with retrocommissioning activities. It is important to understand that the whole-building savings value quoted and recommended by witness Wilson (15%) is derived from the findings of a Lawrence Berkeley National Laboratory (LBNL) study (Mills et al., 2004) and that the LBNL study explicitly includes significant savings from retrofit measures. Indeed, Mills et al. explicitly acknowledge that equipment retrofit/replacement was by far the most frequent measure included in the 69 individual retrocommissioning projects analyzed in that study.[5] In this sense, one must at least deduct Itron's estimates of the technical potential of high-efficiency chillers, packaged DX units, air handler motors, and lighting (in addition to Itron's estimated potential from the tune-up and optimization measures) in order to properly assess any possible under-representation of building retrocommissioning in the technical potential study. Because witness Wilson makes no such adjustments, his proposed incremental savings estimate for retrocommissioning clearly includes significant double counting of savings.

[5] See Figure 15 and Table 9 in Mills et al., 2004 available at: http://eetd.lbl.gov/ea/emills/pubs/pdf/cx-costs-benefits.pdf

In the case of 19 SEER heat pumps, this measure was ultimately not included in the technical potential study due to a lack of reliable data on the incremental cost of such units. Itron first noted the lack of such cost data from its two primary sources for residential HVAC equipment costs (the California Database for Energy Efficiency Resources and FPL's program tracking database) during a conference call with the Collaborative on July 28, 2008. During that call, NRDC/SACE offered to assess the availability of reliable incremental cost data. In the weeks that followed, NRDC/SACE were not able to identify or provide any reliable incremental cost estimates for 19 SEER heat pumps. Indeed, NRDC/SACE determined that "Nothing is more sensitive or tightly guarded than price data in the HVAC industry. The only resources [the American Council for an Energy Efficiency Economy] [has] had any success with are utility programs that require cost information to be submitted for rebates."[6]

With respect to variable-speed pool pumps, Itron included this measure in its analysis of technical potential in the residential sector (measure number 803). As noted by witness Wilson, this measure was not included in Itron's analysis of technical potential in the commercial sector. The reasons for exclusion were twofold. First, reliably assessing the savings potential of variable-speed pool pumps in commercial building applications requires baseline data such as the share of commercial buildings with pools, the average size (horsepower) of commercial pool pumps, and average hours of pump operation. None of these types of baseline data were readily available for Florida's commercial sector. Second, all of the available performance and savings data on variable-

[6] Source: SACE/NRDC memorandum to Itron entitled "Energy Efficiency Measures List – SACE/NRDC Recommendation, Measure: 19 SEER Split-System HP," sent by Tom Larson 8/1/08.

speed pool pumps are for residential pool applications (i.e. <1 hp pump sizes) not commercial applications (which are necessarily >1 hp pumps and likely face very different operational patterns). Thus, even given the existence of adequate baseline data for commercial pool pumps, it would have been unreasonable to simply apply the cost and savings data from a residential pool pump to a commercial pool pump without introducing significant uncertainty.

Q: Do you believe that the "omissions" to the technical potential analysis asserted by witnesses Wilson, Mosenthal, and Spellman resulted in a systematic underestimate of economic and achievable potential?

A: No. Witnesses Wilson, Mosenthal, and Spellman claim that based on certain perceived "omissions," Itron's technical potential study necessarily underestimates technical potential. However, these witnesses do not consider or acknowledge that some measure savings and feasibility estimates included in Itron's study may be optimistic and could possibly overestimate technical potential. As noted previously, we focus on an expected value approach so that any errors that result are neither systematically conservative nor optimistic and thus tend to cancel in aggregate. Critiques of our technical potential estimates that focus only on areas of underestimation are asymmetric.

There are always some measures that are not included in potential studies. The expectation that any assessment of technical potential will ever be 100% comprehensive of all available and feasible efficiency opportunities is not reasonable given the necessity to prioritize the activities conducted in such studies due to invariable limits on the time and resources available. As witness Mosenthal states, "it is impossible to accurately account for every possible opportunity in every market segment. As a result, for

reasonable resource and other reasons, any analysis is somewhat constrained in its comprehensiveness." (Mosenthal Testimony, p 14).

Perhaps more importantly, however, the Commission should not lose sight of the core purpose and objective of the technical potential study conducted by Itron for the FEECA utilities. As stated in the opening paragraph of the Statewide Technical Potential Report, the primary objective of the technical potential study was to "serve as the foundation for estimating economic and achievable potential for each FEECA utility, the latter of which will provide direct input into each utility's proposed [demand-side management] DSM goals for 2010-2019." (Technical Potential for Electric Energy and Peak Demand in Florida – Final Report, p ES-1). In order to serve in that capacity, therefore, the technical potential study must be grounded in defensible end-use baselines and measure-specific cost and savings data in order to allow for the reliable assessment of measure cost-effectiveness and estimation of future measure adoption in specific customer segments.

Q: **Are the technical potential estimates developed by Itron for the FEECA utilities consistent with results from other technical potential studies?**

A: Yes. Itron's estimates of total technical potential for energy savings in the FEECA utilities are very consistent with and comparable to the results from previous studies by Itron, KEMA, and other leading analysts in the industry.

Witness Spellman claims that Itron's technical potential estimate is only equivalent to 19% of forecasted annual sales in the FEECA utilities in 2019. However, the figure offered by witness Spellman contains two significant flaws and thus significantly misrepresents the relative level of technical potential estimated by Itron

compared to other recent studies. First, the figure offered by witness Spellman uses an inconsistent comparative basis to generate the result. Specifically, witness Spellman normalizes Itron's total technical potential estimate to forecasted sales in 2019, whereas Itron's technical potential estimate is mostly accurately compared to 2007 sales (the base year used to calibrate the bottom-up end-use baselines). As stated in Itron's response to Staff's Sixth Set of Interrogatories to JEA, the Orlando Utilities Commission (OUC), and FPUC (*see* Rebuttal Exhibit MR-16),[7] Itron's technical potential estimates developed for the FEECA utilities are snapshot estimates at a given point in time (2007 in this case). Therefore, these technical potential estimates are most appropriately normalized to 2007 sales, not 2019 sales. Second, the estimate offered by witness Spellman contains a significant calculation or typographical error, which results in Itron's technical potential estimates for TECO's commercial and industrial customers being undercounted by a factor of 10 (this error is documented in Rebuttal Exhibit MR-17). The table below presents the full set of technical potential results produced by Itron (by utility and sector), along with the bottom-up comparative baselines and actual total system sales in 2007.[8]

[7] FPUC's response to question 20 of Staff's Sixth Set of Interrogatories is provided as an example in MR-16. JEA and OUC received the same question and gave similar responses.

[8] The actual total system sales in 2007 reflect the data shown in Schedules 2.2 and 2.3 in each FEECA utility's 2009 TYSP, as filed with the FPSC in April. Note that total system sales is equivalent to "total sales to ultimate customers" and excludes sales for resale and utility line losses.

	Residential	Commercial	Industrial	Total Bottom-Up In-Scope Sales (2007)	Total Bottom-Up System Sales (2007)	Actual Total System Sales (2007)
	Baseline sales (GWh)					
FPL	52,910	34,320	5,493	92,723	100,669	105,415
FPU	334	325	134	793	801	813
Gulf	5,148	3,783	886	9,817	10,841	11,521
JEA	5,274	3,381	1,056	9,710	12,710	12,751
OUC	2,343	3,038	205	5,586	6,222	6,079
PEF	20,645	11,544	2,670	34,859	43,058	39,282
TECO	8,092	8,660	1,433	18,185	19,353	19,533
Total	94,745	65,051	11,877	171,672	193,655	195,393
	Estimated technical potential (GWh)					
FPL	20245	10639	965	31,849		
FPU	132	94	26	252		
Gulf	1968	1210	167	3,345		
JEA	2031	944	184	3,159		
OUC	875	897	36	1,808		
PEF	8232	3648	471	12,351		
TECO	3102	2491	260	5,853		
Total	36584	19924	2108	58,616		
	Technical potential as share of baseline sales					
FPL	38.3%	31.0%	17.6%	34.3%	31.6%	30.2%
FPU	39.5%	28.9%	19.4%	31.8%	31.4%	31.0%
Gulf	38.2%	32.0%	18.9%	34.1%	30.9%	29.0%
JEA	38.5%	27.9%	17.4%	32.5%	24.9%	24.8%
OUC	37.3%	29.5%	17.6%	32.4%	29.1%	29.7%
PEF	39.9%	31.6%	17.6%	35.4%	28.7%	31.4%
TECO	38.3%	28.8%	18.1%	32.2%	30.2%	30.0%
Total	**38.6%**	**30.6%**	**17.7%**	**34.1%**	**30.3%**	**30.0%**

As the table above shows, Itron's estimated technical potential for the FEECA utilities is equivalent to 34% of total in-scope sales and 30% of actual total system sales in 2007 (the two most appropriate and valid comparative baselines). Even if one were to compare Itron's snapshot estimates to forecasted 2018 sales (without accounting for new construction additions and decay of the existing building stock), Itron's estimated

technical potential is equivalent to 26% of total annual sales, well above the 19% value offered by witness Spellman, as shown in Rebuttal Exhibit MR-17.[9]

In light of the normalizations presented above and using the comparative table presented in witness Spellman's Exhibit RFS-9, the technical potential estimates developed by Itron for the FEECA utilities are clearly consistent with results of other potential studies conducted by other authors, no matter how the results are normalized. Indeed, compared to the most recent potential study completed by GDS for the New Hampshire Public Utilities Commission, Itron's estimated technical potential for the FEECA utilities is higher than that estimated by GDS for the state of New Hampshire (30% for Florida versus 27% for New Hampshire).[10] In addition, we note that these estimates of technical potential for Florida are higher than our estimates of technical potential estimated in studies conducted by Itron staff since 2001, e.g. in California (2002 and 2008) and New Mexico (2006). These latter studies estimated technical potential at roughly 20% of total system sales. The higher estimate for Florida is attributable to the larger number of measures included in the study. Note, however, that significant differences in technical potential estimates across studies often do not, in and of itself, result in significant differences in economic and achievable potential.

[9] Note that 2018 is the last forecast year available in the utilities' 2009 TYSP filings, not 2019.

[10] See page 5 in "Additional Opportunities for Energy Efficiency in New Hampshire" prepared by GDS Associates for the New Hampshire Public Utilities Commission (January, 2009). Available at: http://www.puc.state.nh.us/Electric/GDS%20Report/GDS%20Final%20Report.htm

ACHIEVABLE POTENTIAL

Q: Do you agree with witness Mosenthal's claim that the analytic framework used in the DSM ASSYST model is "inherently incompatible" with program designs such as upstream incentives, aggressive marketing and education, and financing mechanisms (Mosenthal Testimony, p 19)?

A: No. Witness Mosenthal's claim that the core equations in the DSM ASSYST model are "inherently incompatible" with a variety of program designs is incorrect. Witness Mosenthal's claims appear to reflect a misunderstanding of how the model works or are based on opinions rather than facts about the model's functionality. With respect to marketing and education, the DSM ASSYST model is one of the only models in the industry that explicitly accounts for program-induced changes in customer awareness and knowledge in the adoption methodology. As stated in my testimony (p 23) and Exhibit MR-11 (p 3), measure adoption is modeled as a function of both measure cost-effectiveness to the customer, stock accounting of the eligible customer market in a given year, and customer awareness. In this respect, forecasted measure adoption increases as a result of increases in the measure benefit/cost (BC) ratio (from utility program incentives) and/or increases in customer awareness (from utility marketing and education efforts). The details of the customer awareness trends modeled in Itron's achievable potential forecasts for the FEECA utilities and their impacts on forecasted measure penetration rates is discussed in further detail later in this rebuttal testimony.

With respect to upstream incentives and financing mechanisms, the overall program costs and savings forecasted in previous achievable potential studies conducted by Itron/KEMA have been shown to be consistent with actual portfolio results, even for

several of the most aggressive portfolios in the country, such as those of the California investor-owned utilities. Perhaps the most relevant case in point is KEMA-XENERGY's 2002 assessment of achievable potential in California that served as the basis for the current savings goals for California's investor-owned utilities. This study, led by Fred Coito and myself and using the DSM ASSYST model, predicted program savings under aggressive and maximum achievable funding scenarios roughly equivalent to 0.66% and 1.0% of load per year, respectively, which is very close to the savings that have been captured by utility programs in the years following that study. In this respect, all of the underlying program features of those actual portfolios, which do vary, are thus reasonably averaged out at the portfolio level in the DSM ASSYST modeling framework.

It should be understood that the intent of Itron's achievable potential forecasts was not to predict or determine specific program designs. Rather, the intent was to estimate overall achievable potential program savings and costs under the scenario criteria established by the FEECA utilities.

In addition, witness Mosenthal's claims imply that superior adoption modeling methods are available in the industry; however, no such models or methodologies are referenced nor is any evidence provided that any alternative models offer superior features or parameters to the DSM ASSYST model.

Q: Is witness Mosenthal's interpretation of how the participant test was used in the achievable potential study accurate?

A: No. Witness Mosenthal claims that the participant test calculations did not include customer incentives (Mosenthal Testimony, p 26, line 19) based on the testimony of witness Sim. For the utilities where Itron conducted the participant test calculations and

screens (JEA, OUC, and FPUC), this claim is incorrect. Indeed, all of the participant test analyses conducted by Itron included measure incentives, as shown explicitly in the files produced by JEA, OUC, and FPUC in response to NRDC/SACE's Production of Documents requests (*see* Rebuttal Exhibit MR-18).[11]

Consistent with the inclusion of incentives in the participant cost tests, no measure that passed the Total Resource Cost (TRC) and/or the Rate Impact Measure (RIM) tests failed the participant test in the analyses conducted by Itron for JEA, OUC, and FPUC, as stated in Itron's response to NRDC/SACE's First Set of Interrogatories to Itron (*see* question 2(a)(ii), Rebuttal Exhibit MR-19).

Q: Is witness Mosenthal's interpretation of how measures were "bundled" and "unbundled" in the achievable potential study accurate?

A: No. Witness Mosenthal postulates that Itron "bundled" measures together across building types for purposes of assessing cost-effectiveness and that this bundling resulted in some measures being inappropriately screened out of the analysis during cost-effectiveness testing (Mosenthal Testimony, p 8, lines 22-23; p 43, lines 6-14). In fact, Itron did not conduct any such measure "bundling" for purposes of assessing cost-effectiveness, nor is such measure "bundling" a part of the DSM ASSYST modeling process.

All of the cost-effectiveness analysis conducted by Itron was done at the measure-level by both building type and vintage, as is standard practice in the DSM ASSYST modeling framework. This level of cost-effectiveness analysis is reflected explicitly in the measure/building type/vintage-specific TRC and RIM ratios that were provided by

[11] JEA's response to question 5 of NRDC/SACE's Second Request for Production of Documents is provided as an example in MR-18. OUC and FPUC received the same question and gave similar responses.

JEA, OUC, and FPUC for all of the measures considered in the technical potential study in response to NRDC/SACE's First Request for Production of Documents (*see* Rebuttal Exhibit MR-20).[12]

For purposes of calculating measure-specific incentive levels for the achievable potential forecasts, Itron did aggregate or "bundle" measure costs and savings across building types. This aggregation was necessary in order to calculate weighted average incentives (under the incentive-setting criteria established by the Collaborative) at a level that is consistent with how utility rebate programs are typically administered, i.e. one incentive level for any given measure, as opposed to several building-type specific incentive levels for the same measure (which is very difficult, if not impossible, to implement in practice). To be clear, however, this aggregation exercise was only conducted for the purpose of calculating the incentive levels that were then used in the achievable potential forecasts and were not used and did not affect the cost-effectiveness analysis in any way.

Witness Mosenthal also describes a concern that even if measures were not "bundled" during the cost-effectiveness analysis, that screening measures based on binary pass-fail TRC or RIM results (as is standard practice in potential studies) inherently produces conservative estimates of true economic potential. Witness Mosenthal argues that, "in the real world, however, many technologies may be cost-effective for one customer and not for another. Thus, measures that fail an overall cost-effectiveness test on average for all customers will likely still offer large and cost-effective potential among

[12] JEA's response to question 2 of NRDC/SACE's First Request for Production of Documents is provided as an example in MR-20. OUC and FPUC received the same question and gave similar responses.

many customers. . . . Thus, the true economic and achievable potential is generally larger than estimated in these types of studies." (Mosenthal Testimony, p 44, lines 7-13). While this dynamic (sometimes referred to as "aggregation bias") is inarguably present in all potential studies that include some level of aggregation and segmentation (as opposed to modeling each decision of every member of the population individually), witness Mosenthal misrepresents this dynamic as necessarily asymmetric towards systematic underestimates of economic and achievable potential. However, the converse is also true, i.e. measures that pass an overall cost-effectiveness test on average for all customers can also be non-cost-effective for a significant portion of the eligible population, thereby overestimating true economic and achievable potential. In reality, there is a distribution of customer-specific cost-effectiveness around a population average for any given measure, and there is little if any evidence to support the claim that these distributions are necessarily or even generally asymmetric towards underestimating economic and achievable potential.

Q: Is witness Mosenthal's interpretation of how naturally-occurring energy efficiency potential was assessed and treated in the technical and achievable potential studies accurate?

A: No. Witness Mosenthal asserts that "the technical potential study only includes the remaining portion not naturally adopted by these measures" (Mosenthal Testimony, p 16, lines 7-9) and that the technical potential analysis "also specifically accounts for estimated base case adoption of naturally-occurring efficiency" (Mosenthal Testimony, p 14, lines 5-7). These assertions support witness Mosenthal's conclusions that the technical potential of measures with paybacks of less than two years are "opportunities

that customers have not and are not expected to adopt on their own" (Mosenthal Testimony, p 14, lines 6-7) and that "100% of the estimated technical potential associated with measures that payback in less than 2 years will not be captured in Florida absent some DSM intervention" (Mosenthal Testimony, p 16, lines 9-11). This interpretation of how naturally-occurring potential was assessed and treated in the technical and achievable potential studies is incorrect and leads to inaccurate conclusions.

In contrast to witness Mosenthal's interpretation, Itron did not specifically account for or attempt to quantify the amount of naturally-occurring energy efficiency potential embedded in the FEECA utilities' load forecasts. Specifically, the technical potential estimates developed by Itron reflect the full, technically feasible savings potential from *all* measures analyzed in the study, regardless of the payback times of any given measure. The achievable potential estimates then reflect the estimated adoption of each measure based on the cost-effectiveness to the customer, stock turnover rates, and customer awareness. In this respect, both of witness Mosenthal's conclusions are inaccurate as demonstrated by Itron's forecasts of naturally-occurring adoption for measures with paybacks of less than two years provided in response to NRDC/SACE's First Set of Interrogatories to Itron (*see* question 2, Rebuttal Exhibit MR-19).

Q: Is witness Mosenthal's interpretation of how customer awareness, customer economics, and market barriers interact in the DSM ASSYST modeling framework accurate?

A: No. Witness Mosenthal argues that the overall adoption modeling methodology used by Itron is problematic because customer awareness is assumed to be static (Mosenthal Testimony, p 46, lines 1-2). In fact, Itron's adoption forecasts for the FEECA utilities

reflect significant increases in customer awareness over the forecast period resulting from explicit utility assumptions about DSM marketing expenditures going forward.

As described in Itron's response to question 5 of NRDC/SACE's First Set of Interrogatories to the FEECA utilities, in the DSM ASSYST modeling framework, starting year awareness (i.e. awareness in year zero of the forecast period) for each measure is estimated as a function of its benefit-cost ratio without incentives such that more cost-effective measures have higher starting awareness levels compared to less cost-effective measures. Going forward in the forecast period, cumulative awareness is estimated as a function of the measure benefit-cost ratio with incentives, awareness decay assumptions, utility program marketing budgets, and marketing effectiveness assumptions. All of the utility marketing budgets assumed in Itron's achievable potential forecasts, along with the marketing effectiveness assumptions, and awareness decay assumptions were provided by Itron in response to NRDC/SACE's First Set of Interrogatories to the FEECA utilities (*see* Rebuttal Exhibit MR-21).[13]

Witness Mosenthal also claims that customer economics is the only parameter that drives customer adoption in the DSM ASSYST model (Mosenthal Testimony, p 46, lines 3-4) and that the resulting penetration rates in Itron's achievable forecasts are constant (Mosenthal Testimony, p 48, lines 17-18). Both claims are incorrect. In fact, measure adoption was modeled as a function of both measure cost-effectiveness to the customer, stock accounting of the eligible customer market in a given year, and customer awareness, as described in my Exhibit MR-11 and Itron's responses to question 5 of

[13] PEF's response to question 5 of NRDC/SACE's First Set of Interrogatories is provided as an example in MR-21. The other FEECA utilities received the same question and gave similar responses.

NRDC/SACE's First Set of Interrogatories to the FEECA utilities. To be clear, in the DSM ASSYST modeling framework, forecasted measure adoption can and does increase as a result of increases in the measure BC ratio (from utility program incentives) and/or increases in customer awareness (from utility marketing and education efforts).

In this respect, the DSM ASSYST model indeed has the flexibility and functionality required to capture the effects of utility efforts to increase customer awareness that witness Mosenthal argues are critical to successful DSM programs (Mosenthal Testimony, p 47, lines 4-6). Furthermore, the impacts of the utility marketing assumptions on forecasted measure penetration rates is evident in the results generated by Itron for the FEECA utilities. As shown in Itron's response to question 26 of NRDC/SACE's Second Set of Interrogatories to FPL (*see* Rebuttal Exhibit MR-22) and Itron's response to question 43 of Staff's Seventh Set of Interrogatories to OUC (*see* Rebuttal Exhibit MR-23), the annual measure penetration rates forecasted by the DSM ASSYST model increase significantly throughout the forecast period and are not, as witness Mosenthal claims, constant over time. These increasing measure penetration rates show the combined effects of utility incentives and utility marketing efforts. Indeed, witness Mosenthal is correct in his assertion that the effect of utility incentives on customer adoption is estimated as a constant effect in the DSM ASSYST modeling framework. Importantly, however, it is only constant within the *eligible and aware* market (as reflected in the outputs voluntarily provided by Itron to NRDC/SACE for review). Therefore, the increasing measure penetration rates in Itron's adoption forecasts explicitly reflect significant growth in the *size of the aware market* resulting from utility marketing expenditures throughout the forecast period.

Finally, witness Mosenthal claims that "the average of the maximum penetration rates for each measure for FPL's analysis of the residential sector ranges from a low of 6.8% (RIM-Low scenario) to a high of 17.1% (TRC-High scenario). For the commercial sector, the figures are 9.3% and 17.9%" (Mosenthal Testimony, p 48, lines 14-17). This characterization of the maximum penetration rates forecasted by Itron is incorrect and misleading. First, the penetration rates quoted by witness Mosenthal are only relative to the *eligible and aware* market and thus ignore the forecasted impacts of utility marketing expenditures as described above. Second, witness Mosenthal characterizes results from the RIM-Low scenarios as being representative of the "maximum" penetration rates forecasted by Itron, when those results are clearly not being presented by either Itron or the FEECA utilities as estimates of "maximum" penetration rates or "maximum" achievable potential. Third, the summary statistics presented by witness Mosenthal are unweighted simple averages across all measures. These simple averages mask both the broad range of measure-specific penetration rates and the relative contributions of each measure to the aggregate achievable potential. In fact, the measure-specific "maximum" penetration rates forecasted by Itron for FPL range from 1% to over 50% in the residential sector and 1% to over 70% in the commercial sector depending on the relative importance of BC ratio among measures (due to market barriers) and measure-specific incentive levels, as shown in Itron's response to question 26 of NRDC/SACE's Second Set of Interrogatories to FPL (Rebuttal Exhibit MR-22). Moreover, when taking into account the differences in per-unit energy savings across measures, the true weighted-average "maximum" penetration rate for FPL is 30.8% for residential and 52.1% for commercial in the TRC-H scenario, in contrast to the 17.1% and 17.9% simple averages

respectively offered by witness Mosenthal. The calculations supporting the weighted-average values reported above are provided in Rebuttal Exhibit MR-24.

Q: Are witnesses Mosenthal and Spellman's characterizations accurate that the achievable penetration rates estimated by Itron do not represent effective and well-designed utility programs?

A: No. Witness Mosenthal argues that the effect of using current program accomplishments in Florida to calibrate the adoption curves used in the analysis is to "arbitrarily limit the achievable potential analysis to no more than what Florida is currently doing" (Mosenthal Testimony, p 51, lines 19-20). Witness Spellman argues that "it is not appropriate to constrain future estimates of market penetration to the achievements made in the past in Florida when the RIM test prevented many energy efficiency programs from being implemented" (Mosenthal Testimony, p 25, lines 5-7). These claims are incorrect with respect to our adoption modeling methods, and the adoption calibration process itself constrained the overall study results.

For measures and incentive levels consistent with current program offerings, the forecasted *first-year* adoptions of those particular measures in those particular incentive scenarios were calibrated to recent program accomplishments. However, for incentive scenarios where the assumed incentive levels exceeded current rebates offered by the FEECA utilities, the adoption forecasts were by definition not constrained by past program accomplishments. This is because the higher incentive levels (compared to the calibration case) necessarily result in higher customer adoption in the DSM ASSYST modeling framework and therefore higher adoption than has been observed in recent programs. Additionally, the impacts of utility marketing expenditures on customer

awareness accumulate going forward in the forecast and result in additional, incremental adoptions beyond those predicted solely as a result of utility incentives (as described earlier).

Witness Mosenthal also claims, "existing program results certainly establish a floor of what can be done, but do not represent the most that can be done" (Mosenthal Testimony, p 49, lines 8-10). The implication of this argument is that the assumption that program delivery will improve dramatically and steadily into the future should drive the forecast results rather than revealed customer preferences and the observed performance of good average industry programs.

As stated earlier in this rebuttal, the overall program costs and savings forecasted in previous achievable potential studies conducted by Itron/KEMA have been shown to be consistent with actual portfolio results, including jurisdictions that have pursued aggressive program funding levels (e.g. California). Indeed, Itron and KEMA have produced achievable potential forecasts in other studies with measure penetrations reaching 60% in 10 years under aggressive programs and up to 80% for particular measures using the same DSM ASSYST model, the same set of adoption curves, and the same calibration processes.

Itron strives to forecast expected-value adoption levels based on good program practices, observed customer preferences, and known measure costs and savings. In all of the potential studies conducted by Itron, Itron's primary objective is to forecast the *most probable* level of adoptions and total program costs and savings given the screening, cost effectiveness, incentives, and other criteria that define each scenario.

TRC COSTS AND BENEFITS

Q: Do you agree with witness Mosenthal's position that it is not reasonable to use discount rates based on the utility's cost of capital when performing the TRC test?

A: The use of the utility's cost of capital as the discount rate when performing the TRC test is standard practice in potential studies. The use of the utility's cost of capital as the discount rate in TRC tests is also standard practice in California and other jurisdictions that use TRC to evaluate the cost-effectiveness of rate-payer funded energy efficiency programs. *See*, for example, the California Public Utilities Commission's Energy Efficiency Policy Manual (CPUC, 2008).[14]

SUMMARY

Q: Have any of NRDC/SACE or Staff's witnesses demonstrated Itron's data inputs, assumptions, methods, and models to be flawed?

A: No. None of the testimonies of witnesses Wilson, Mosenthal, and Spellman have explicitly demonstrated that the data inputs, assumptions, methods, and models used by Itron to estimate potential, given the scope and criteria set for the study by the FEECA utilities, are flawed or produce biased results. The NRDC/SACE or Staff's witnesses have not provided any evidence that alternative models offer superior features or parameters to the DSM ASSYST model or that our input data are inaccurate or biased. Itron staff has used the same models and quality of data in this study as we have in our previous potential studies. We have produced a wide range of efficiency potential estimates within and across studies as a function of differences in project scopes and

[14] See the *Energy Efficiency Policy Manual, Version 4.0* (CPUC, 2008) available at: http://www.cpuc.ca.gov/NR/rdonlyres/F17E8579-3409-4089-8DE4-799832CF682E/0/PolicyRulesV4Final.doc

efficiency scenario definitions. The underlying data and modeling methods we have used are consistent across these studies. Itron staff has been industry leaders in the development and implementation of efficiency potential studies for over twenty years. Our documentation and results have been accepted and used for goal setting in jurisdictions throughout the United States.

Itron strives to produce expected value forecasts of potential savings from energy efficiency that are comprehensive, bottom-up, unbiased, transparent, and internally-consistent. Forecasts with these characteristics form a defensible basis upon which to realistically evaluate the size of the achievable potential resource and the expected costs (to customers and utilities) to acquire that resource over a given time frame for a given set of conditions.

Q: Does that conclude your rebuttal testimony?

A: Yes.

BY MS. CLARK:

Q. Mr. Rufo, have you prepared a summary of your direct test -- your rebuttal testimony?

A. Yes.

Q. Would you provide that summary at this time?

A. Yes. I'm just noting in my hard copy here that the exhibits go through 24.

Q. Yeah. I beg your pardon. Yes. It's -- the numbers I was referring to, those are as they have been indicated in the Prehearing Order.

A. Okay. Thank you.

My rebuttal testimony responds to points raised in the testimonies of Witnesses Spellman and Guidry for GDS Associates on behalf of the staff, of Commission staff, and Witnesses Wilson and Mosenthal on behalf of NRDC/SACE.

My testimony shows that the criticisms of the Itron data and modeling methods by these witnesses are either without merit, inaccurate or insignificant.

First, Mr. Spellman claims that the Itron technical study lacked necessary documentation, transparency and reproducibility. This is simply not true. Documentation and transparency are key features of all Itron potential study reports, and the one done for Florida is no different.

In fact, Mr. Spellman and Ms. Guidry availed themselves of numerous opportunities to review Itron's documentation and to receive detailed explanation of the data development processes and model mechanics to assist them in their efforts to review and verify Itron's data and methods, including an all-day session with Itron.

Second, the basis on which Mr. Spellman claims that Itron's estimates of energy efficiency potentials are significantly underestimated involves either incorrect, flawed or overstated analyses. GDS's analyses, analysis regarding electricity sales is flawed because they assume customer classifications used in Ten-Year Site Plans are the same as those used in the technical potential analysis. As we have previously indicated, they are not.

Third, the claims of Mr. Spellman along with those of Mr. Wilson and Mr. Mosenthal that Itron's technical potential study inappropriately excluded certain energy efficiency measures and that these exclusions significantly affect the overall results are overstatements that ignore the measureless (phonetic) rationales provided in the study and through subsequent interrogatories and production of documents.

The measures that Mr. Spellman and Mr. Wilson criticize Itron for failing to include in the study were

not included because doing otherwise would have resulted in double counting of savings already captured in the study, because of strong evidence showing very high levels of free ridership for certain measures or because there's not reliable performance in savings data readily available on certain applications.

Mr. Mosenthal's related claim that the study did not account for interactions between measures is also inaccurate as integrated design approaches were considered.

I properly analyzed (phonetic) the additions raised by these witnesses would likely have only a very small impact on the overall estimate of technical potential. On the other hand, none of their critiques of the technical potential estimates address areas of potential overestimation. They all address potential underestimation. And there may be some instances of overestimation as well in any study.

Further, technical potential studies do not in practice include 100 percent of all the available and feasible efficiency opportunities. Instead, within the time and resource constraints the study must be grounded and defensible (phonetic) and use baselines and measure-specific costs and savings data in order to provide a foundation for each utility to estimate

economic and achievable potential. Itron has provided such a study.

Fourth, Itron's technical potential study in Florida is consistent with and comparable to the results, or comparable to the results from other technical potential studies. In fact, the estimates of technical potential for Florida are higher than estimates of technical potential estimated in other studies conducted by Itron's staff since 2001.

Mr. Spellman's assertions to the contrary are inaccurate and appear to contain a significant typographical error, which results in an undercounting of overall potential by roughly one-third, with the error for one of the utilities being a factor of 10.

Fifth, Mr. Mosenthal's assertions questioning the achievable potential appear to reflect some misunderstanding about how the model works. Mr. Mosenthal's claim that the model used by Itron is incompatible with a variety of program designs is not accurate and overlooks the unique features of the model, which is one of the leading models in the industry. Mr. Mosenthal's other various claims regarding the achievable potential reveal some apparent misunderstandings of several important aspects of the model.

Finally, the claims of Mr. Mosenthal and Mr. Spellman that the achievable potential rates estimated by Itron, given the screening criterion and incentive levels, do not represent effective and well-designed programs that appear to reflect inadequate understanding of Itron's adoption modeling and calibration process. The claim that using current accomplishments to calibrate the adoption curves limits the achievable potential to the status quo is mistaken.

In all its achievable potential studies, Itron's primary objective is to forecast probable levels of adoptions and total program costs and savings given the defining criteria. The overall program costs and savings forecasted in previous achievable potential studies by Itron have been shown to be consistent with actual portfolio results, given a consistent set of portfolio defining criteria.

COMMISSIONER EDGAR: Thank you.

Ms. Clark?

MS. CLARK: Mr. Rufo is tendered for cross.

COMMISSIONER EDGAR: Ms. Kaufman.

MS. KAUFMAN: Thank you, Madam Chair. I have no questions.

COMMISSIONER EDGAR: Okay. Mr. Longstreth.

MR. LONGSTRETH: Thank you.

CROSS EXAMINATION

BY MR. LONGSTRETH:

Q. Thank you, Mr. Rufo.

Mr. Rufo, in your rebuttal I believe at Page 22 you describe a California 2002 study; is that correct?

A. Give me a moment and I'll turn to that.

Correct.

Q. And could you describe or summarize the potential achievable results that you predicted in that study?

A. The reference I made here in the rebuttal was to aggressive and maximum achievable funding scenarios of savings roughly equivalent to two-thirds of 1 percent and 1 percent of load per year. I think those were, those were rough approximations. I believe those are gross numbers. But more or less.

Q. Thank you. And is it correct that you indicate that the savings have been cap, captured to a -- sorry. Withdraw. Let me start over here.

Is it correct that you indicate that the savings that have been captured in fact have been very close to the savings you predicted?

A. Yeah. I think, yes, in general terms, without going into too much of the specifics, I think that there

have been, there are some challenges that those utilities have faced in meeting the higher levels of savings and there are some differences of opinion in that jurisdiction regarding how well they're doing. But it's not an order of magnitude issue. It's primarily an issue of -- anyway, yeah.

Q. Could you elaborate on what the different opinions are with respect to the actual levels of savings that have been captured?

A. I think the issues -- you're talking about here with reference to the California?

Q. Correct.

A. I think the, there are, there are a lot of issues there. I think the one that I'm referring to here is just would refer to differences in perspective between parties in California with respect to the claimed savings that the utilities have made for 2006 through 2008 programs versus the Commission's energy division staff estimates of savings for that period. There is, I think, I don't want to go on the record, but a 30-year or so percent difference. And I think staff has derated their, their savings maybe 30 percent or so. But they haven't, there hasn't been an agreement, regulatory-based agreement on what those numbers are.

Q. And could you just -- can you indicate what

the two numbers are? I mean, is it 66 versus 1, or --

A. Well, yeah. That's too, there's too much -- I wouldn't want to do that. There's too much data involved, and I haven't, I haven't done an analysis of that. That would be, that would be difficult. I guess -- yeah.

Q. So but in summary, to the extent you're saying they are very close to the savings you predicted, you're referring to your prediction -- predicted range of between .66 and 1 percent per year; is that correct?

A. Yes.

Q. And do you know whether the savings levels have followed any trend since 2002?

A. In that jurisdiction?

Q. Yes.

A. I believe the claimed savings have been, have been increasing, although there may have been a decrease in the 2003/2004 period, as 2002 may have been a high claim year related to the California energy crisis.

Q. And, Mr. Rufo, do you know for how many years California has been pursuing energy efficiency?

A. Since, I would say, the late '70s or the early '80s.

Q. And, Mr. Rufo, you suggest that California IOUs are among the most aggressive portfolios in the

country; is that correct?

MS. CLARK: Madam Chairman, I would appreciate him indicating where that's in his testimony.

MR. LONGSTRETH: That's at the top of Page 22. Several of the most -- I'll just quote quickly. "Several of the most aggressive portfolios in the country, such as those of the California investor-owned utilities."

MS. CLARK: Would he please restate his question? That's not how I heard it.

COMMISSIONER EDGAR: Mr. Longstreth, can you restate the question?

MR. LONGSTRETH: I will. I'm sure I stated it inartfully.

BY MR. LONGSTRETH:

Q. Mr. Rufo, is California among -- you testified that California is among several of the most aggressive portfolios in the country, or California investor-owned utilities.

A. Yes.

MS. CLARK: Madam Chairman, I would, I would like clarification. At the end you added "investor-owned utilities," and I just see this as referring to California. Oh, I beg your pardon. I see that now.

THE WITNESS: I might add that the context for these references in my rebuttal testimony are with respect to our modeling methods and data and giving an example of how the same data and modeling methods have produced different levels of efficiency potential under different sets of criteria. So that was really the context. It was really in defense, if you will, of the data and methods used, not really to make any, any point about these other jurisdictions.

BY MR. LONGSTRETH:

Q. Understood. Thank you.

Could you indicate what other states you consider to be among those with the most aggressive portfolios?

MS. CLARK: Madam Chairman, I would, I would indicate we have, the testimony list does refer to some. I don't know that Mr. Rufo has provided testimony regarding all of them.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: Could I just have clarification? When you indicate the testimony list --

MS. CLARK: As I heard your question, it was: "Do you believe they're among the most aggressive in the country?" Maybe I added that part, but -- and I don't see his testimony as covering them all.

MR. LONGSTRETH: I was, I was just inquiring what other states. Mr. Rufo has indicated that California is among a group of states that he considers the most, having the most aggressive portfolios in the country. And I want to understand what that group is so we can evaluate whether we agree with that statement and know the context for it.

COMMISSIONER EDGAR: Mr. Rufo, if you can answer the question, go right ahead, please.

THE WITNESS: Well, again, I could venture some guesses, but I don't have in front of me the information that I would want to, to be definitive. And I think -- again, I would just say that my reference here was really simply with respect to our model and jurisdictions that we've, we've made our estimates and demonstrating that the estimates have ranged in different jurisdictions with different criteria.

But I guess to put the -- and these, and the other thing is the numbers, the investments that are going on around the country are changing every day. So it, it -- I'm a little hesitant to go on the record about opining on what other jurisdictions meet that the criteria. I think I'm more comfortable just saying that I believe California is one of the, the more aggressive jurisdictions for energy efficiency programs

expenditures.

And my point being again that, just that -- well, I think I made the point. I'm done.

BY MR. LONGSTRETH:

Q. Do you know whether any jurisdictions at the moment are achieving levels higher than those currently being achieved in California?

A. I don't know for sure. I've seen references made to higher claimed savings. I think Vermont is one that has perhaps claimed higher. I believe there may be information in other witnesses' testimony, so I wouldn't say no.

Q. And with respect to potential, potential achievable results, do you know if states that have achieved levels, or I should say studies for states or utilities that have achieved levels higher than those you predicted in California?

A. Whether other studies have estimated higher levels of achievable potential? I believe so.

Q. And are you familiar enough with any of those studies to indicate what those levels have been?

MS. CLARK: Madam Chairman, I would say this question is beyond the scope of his testimony.

MR. LONGSTRETH: Madam Chairman, the reason we think this is relevant is, again, that it goes to,

there's a statement about whether California is the most aggressive, and I believe that's in reference to both the -- or it is not clear to me that it's not in reference to both what is being achieved and the, the projected potential achievable considered in studies.

MS. CLARK: I would add that I believe it's been asked and answered as well.

COMMISSIONER EDGAR: I am going to allow. But I was also going to say that I think that we've, it appears to me that we have covered this ground. So I would like to move along.

MR. LONGSTRETH: I will -- does he get to answer it?

COMMISSIONER EDGAR: He does.

MR. LONGSTRETH: And then I will promise to move along.

COMMISSIONER EDGAR: He does. Thank you.

I'm sorry. Would you please repeat the question?

BY MR. LONGSTRETH:

Q. Yes, with difficulty here. I believe my question was -- well, actually could you just read back the question?

(Foregoing question read by the court reporter.)

A. Somewhat. I'm not, I'm not, I have not honestly been going through studies conducted by other organizations and firms of late, so.

MR. LONGSTRETH: Thank you. I'd like to -- we passed around a document during the break which is a table with the title Penetration Model Output File Name. I'd just like to note for everybody's clarification that the first page is an enlargement of the left half of the second page that you received simply because the second page has very small print. And we would, we'll ask to introduce this. We, I discussed with Ms. Clark, and we need to determine that this is the, the correct version.

COMMISSIONER EDGAR: Ms. Clark.

MS. CLARK: Yes. We don't have the cover document to verify that this is, in fact, information provided by Itron. Mr. Longstreth is going to attempt to find that so we can look at it and verify that it is the right document.

COMMISSIONER EDGAR: Okay. So let's go ahead and mark and identify. And before we enter, if we enter, then we can have that validation.

Okay. So this will be 168. And will you label for me, Mr. Longstreth?

MR. LONGSTRETH: Penetration Model Output.

(Exhibit 168 marked for identification.)

COMMISSIONER EDGAR: Okay. Go right ahead.

MR. LONGSTRETH: Thank you.

BY MR. LONGSTRETH:

Q. Mr. Rufo, have you had an opportunity to review this document now labeled 168?

A. Yeah, just generally with respect to what it is.

Q. And do you, do you recognize it as a document that may have been produced by Itron?

A. Yes.

Q. And I'd just like to turn to Page 29 of your rebuttal. And is it correct that -- I believe five lines down on Page 29 you indicate that the, the penetration rates quoted by Witness Mosenthal are only relative to the eligible and aware market, and thus ignore the forecasted impacts of utility marketing expenditures?

A. Yes.

Q. And do you understand whether it's possible that Mr. Mosenthal in discussing penetration rates in his testimony could have been referring to this document Number 168?

MS. CLARK: Madam Chairman, I'm going to object. I don't think this witness can speculate on Mr., what Mr. Mosenthal understood.

COMMISSIONER EDGAR: Mr. Longstreth, I will give you the opportunity to rephrase.

MR. LONGSTRETH: Thank you.

BY MR. LONGSTRETH:

Q. Mr. Rufo, could you just read the, the title of the document Number 168?

A. Penetration Model Output, that document?

Q. Correct. And you can omit the --

A. File name?

Q. Yes.

A. Penetration Model Output Annual Gross Penetration Rates Percent of Eligible Market.

Q. And is it possible, Mr. Rufo, that if -- Mr. Rufo, as you understand this document, do you believe that it is the percent of the eligible market only?

A. I believe these values are the adoption rates that come off of the curve that we were discussing yesterday. Those rates are then multiplied by the aware and eligible portion of the market. So I believe these are, subject to check, the adoption rates that come off of the adoption curve. So this would be the adoption that is then applied to the aware and eligible market.

Q. So this, the percentages filed here reflect both the eligible and aware; is that correct?

A. I'm, I'm not, I'm not sure about that. I believe these, these numbers need to be multiplied by the eligible and aware percentages to get to the actual estimated adoptions, subject to check because I can't, I can't go in and check the formulas in this hard copy. But that's -- subject to check, yeah. I'm pretty sure about that.

Q. Okay.

A. I can kind of tell because the numbers are constant across the years. And because the incentive level was constant, then the adoption rate would be constant. However, the total adoptions is not constant because the awareness levels change over time. The eligible market changes over time.

Q. And so if the, the numbers that are presented here, when you go through that next step, what will happen to those numbers?

A. If the aware and eligible, the aware and knowledgeable market is 100 percent, then these percentages would stay as they are. If those numbers are lower than 100 percent, then the interaction of those numbers would produce a lower percentage as compared to the total available market.

Q. So if, if Mr. Mosenthal was in his testimony referring to these, the numbers contained in this table,

is it correct that his, he would actually have been -- the misunderstanding that he may have had would, would have left him looking at numbers that are higher than what the, the numbers would be had he not had that misunderstanding you identify in your testimony?

A. Yeah. I don't know about that, just because the numbers that I'm looking at on Page 29 of my rebuttal are lower than these, than these numbers. So, so I don't know. I'm having trouble reconciling that. I mean, in theory what you're saying is true. But in practice, I don't, I don't understand how that would result in the, in the, in the estimates quoted here from Mr. Mosenthal.

Q. And let's just move -- what happens to these numbers when you add the forecasted utility marketing expenditures?

A. Yeah. As I, as I tried to describe, we have a naturally occurring forecast of both a measure adoption as a function of the benefit-cost ratio and we have a naturally occurring forecast of awareness and knowledge. And these all refer to the remaining potential that, not complete portion of the market, not to the portion of the market that may have already adopted the measure, but for the portion of the market that hasn't adopted the measure, sorry, we have a forecast of natural

awareness and knowledge.

And you, you take the -- and then we have a stock accounting. So to be available, the stock has to turn over. So as I referenced before, there may be X million square feet of chillers out there, but only a portion of that market is aware to make a choice every year, only the portion of those chillers that burn out. So that would be the, the thing about the stock as being available. And then of that stock available, what percentage of those decisions, decision-makers are aware and knowledgeable of the efficiency opportunity. That's what we're forecasting in this natural awareness and in this program-induced awareness.

So for the naturally occurring we take the percentage of the natural awareness times the stock available and then we multiply that by the natural adoption rate.

In the program case we do the exact same thing. We now take the program-induced awareness and knowledge times the available stock times the program-induced adoption level. Is that clear?

Q. Crystal clear.

A. So you have this percent multiplied by one other percent.

Q. Mr. Rufo, I'll try to move along quickly here.

On Page 17 of your rebuttal testimony you discuss the technical potential study, and I just wanted to ask you if you, if you recall in the, in the technical potential study itself there was a definition offered, and I'd like to read that. I don't have copies unfortunately, but -- and see if you recall that.

I believe that it states, "Technical potential is defined in this study as the complete penetration of all measures analyzed in applications where they were deemed technically feasible from an engineering perspective."

A. That sounds correct.

Q. And I believe it also states that technical potential is a theoretical construct that represents the upper bound of energy efficiency potential from a technical feasibility sense, regardless of cost or acceptability to customers.

A. That sounds right.

Q. And I'd just like to turn to your rebuttal testimony, and on Page 17 I believe you state at Line 11, "Therefore, the technical potential study must be grounded in defensible end-use baselines and measure-specific costs and savings data in order to allow for the reliable assessment of measure cost-effectiveness and estimation of future measure

adoption in specific customer segments."

A. Uh-huh.

Q. And, Mr. Rufo, is the requirement for measure-specific costs and savings data essential to determination of the technical potential as defined in that study?

A. I would say that the cost is not required at that step, but all the other data is. So I think this statement was contextually referencing the fact that in the -- as, as conducted in this study, cost data was developed during the technical potential step just to prepare the data for the next step. And the cost data was only used indirectly in the technical potential study for stacking purposes. There was no cost-effectiveness estimate in the technical potential step.

Q. But is it correct that the definition of technical potential would include measures for which costs and savings data were not available at that point, if you could identify a method to avoid double counting?

A. Did you say cost and savings data?

Q. I did. But I think probably I should not have said savings data, now that I'm thinking it through. So thank you, and with that clarification.

A. Yes. Well, we -- and the way we

implemented -- now I guess the problem is in theory in the technical potential step we're not using cost, but in practice, because we use a supply curve methodology, we need some kind of cost indicator to stack measures to implement our, our, our supply curve stacking. So that's how costs are used. So if we didn't have costs in this step, we would not have been able to use the measure in the analysis. Does that -- I mean, I don't --

Q. Yeah. Thank you. I just will -- if we could turn to Page 14 of your testimony. Is it -- this concerns the discussion of retrocommissioning adjustments proposed by Mr. Wilson. Is it right, correct as an essential point that you identified some additional double counting of savings that would, would occur based on Mr. Wilson's proposal? And if I told you that Mr. Wilson had recalculated his adjustment to the retrocommissioning using Itron's data for the measures that you believe reflect the double counting and that the, the statewide deduction to address that double counting increased from 150 gigawatt hours to 1,600 gigawatt hours, would that sort of adjustment appear responsive to your critique? I'm not asking you to confirm those numbers, but just the method.

MS. CLARK: Madam Chairman, we object to that

question. I mean, you can't use cross examination to do surrebuttal.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: I mean, we agreed to let Mr. Rufo do his rebuttal at this point. And if, if we had gone in the normal order, Mr. Wilson could have presented this already.

COMMISSIONER EDGAR: Ms. Clark?

MS. CLARK: Mr. Wilson has prefiled rebuttal of his direct testimony. There is no opportunity to add to that testimony at this point.

COMMISSIONER EDGAR: Ms. Helton?

MS. HELTON: This, this proceeding does not contemplate surrebuttal, whether live or prefiled, and so it seems to me that we're beyond the scope of the prefiled rebuttal testimony of Mr. Rufo.

COMMISSIONER EDGAR: On the advice of counsel, I will sustain the objection.

Mr. Longstreth, about how much more do you have for this witness?

MR. LONGSTRETH: I think I have about ten minutes remaining. I do understand that there's some need to get Mr. Steinhurst on the stand because of travel constraints. I can try to finish my -- finish this, but it's --

COMMISSIONER EDGAR: Okay. I just wanted -- no. I just wanted a feel. Go right ahead.

MR. LONGSTRETH: Okay. Thank you.

BY MR. LONGSTRETH:

Q. Mr. Rufo, could you just tell me how you would go about correcting for the double counting that you identified in Mr. Wilson's testimony?

MS. CLARK: Madam Chairman, I think this is a different means to get to what we just indicated was inappropriate surrebuttal. It's not up to Mr. Rufo to do those calculations.

MR. LONGSTRETH: I -- if the Commission -- it appears to me that that would be a useful way of clarifying the nature of the critique he had of Mr. Wilson's testimony.

COMMISSIONER EDGAR: It seems that we are retreading, so let's move on. Sustained.

MR. LONGSTRETH: I will.

BY MR. LONGSTRETH:

Q. Mr. Rufo, I'd like to direct your attention to Page 22, excuse me, 32 of your testimony.

A. Okay. I have it.

Q. You discuss Mr. Mosenthal's position on the appropriate discount rates. In your opinion, is it unreasonable to use the discount rate Mr. Mosenthal

suggested for the TRC, which I believe is often referred to as the societal discount rate?

MS. CLARK: Madam Chairman, I would again indicate that I think this is a means to provide surrebuttal through this witness, and I would object to that question.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: I believe Mr. Rufo has indicated a critique, and I'm trying to identify the bounds of that critique of Mr. Mosenthal's suggestion.

MS. CLARK: Madam Chairman, I think if we look at the testimony, it indicates that the use of a utility's cost of capital at the discount rate when performing the TRC Test is standard practice in potential studies, and that's the scope of his testimony. He's not here to weigh in on other potential discount rates.

COMMISSIONER EDGAR: Mr. Longstreth?

MR. LONGSTRETH: I will -- I'm going to -- I mean, in my view the, the question he was responding to was whether or not it's reasonable to use the utility discount rate, and he indicates a response that it is standard practice. And my question is whether he also views it as unreasonable to use the alternative proposed.

COMMISSIONER EDGAR: I'll allow. Overruled.

THE WITNESS: I guess I would say the choice of the discount rate is a policy matter and one might utilize different discount rates for scenario analysis. They tell you use of different discount rates would, would tell you something different depending on, you know, what the associated policy objective of using that discount rate would be.

But I think it's, you know, one of the key issues is using a consistent discount rate in any resource-related analysis. So if one is going to use a different discount rate, one wouldn't want to use different discount rates for different resources, demand, supply, what have you.

BY MR. LONGSTRETH:

Q. And are you aware of whether other --

A. And I don't recall, by the way, what specific discount rate Mr. Mosenthal was referring to.

Q. Are you aware whether other discount rates are sometimes used in any jurisdictions in the TRC Test?

MS. CLARK: Madam Chairman, I would object to that question. I think it's beyond the scope of his testimony. He has answered the one regarding whether others could be used.

MR. LONGSTRETH: Madam Chairman, he has

testified that use of the utility cost of capital discount rate is standard practice in California and other jurisdictions, and I'm asking him whether he knows of any jurisdictions that do not use it and are exceptions to that, which is, has a significant bearing on the degree to which it's standard practice.

COMMISSIONER EDGAR: All right. I'm going to sustain because I feel like we're -- sustained. You need to move on. We're circling. We need to move forward.

BY MR. LONGSTRETH:

Q. Mr. Rufo, on Page 33 of your testimony you indicate that your forecasts are a defensible basis upon which to realistically evaluate the size of achievable potential resource and expected costs to customers and utilities to acquire that resource over a given time frame for a given set of conditions. Could you explain what you mean by "for a given set of conditions"?

A. Yeah. They're referring, as I think I have in some of my other testimony, to the specific, I would call them portfolio defining criteria. They're the things that, that have been discussed here in the hearing with respect to cost-effectiveness tests used, any screening criteria, incentive levels, marketing budgets.

Q. And do those screening criteria include the use of the two-year payback screen?

A. Yes.

MR. LONGSTRETH: No further questions.

COMMISSIONER EDGAR: Thank you.

Ms. Brownless?

MS. BROWNLESS: Thank you.

COMMISSIONER EDGAR: I'm sorry. Did I, did I move too fast?

MR. LONGSTRETH: Well, I just want to clarify perhaps how much time, just so that we make sure that Mr. Steinhurst, that the utilities that wish to cross him have enough time to do so, given his schedule. I think we have --

COMMISSIONER EDGAR: Okay. Well, let's just see where we are.

Ms. Brownless, and I won't hold you strictly to it, but approximately how much do you have for Mr. Rufo?

MS. BROWNLESS: Four questions.

COMMISSIONER EDGAR: Oh, okay. And give us just a moment.

Okay. Are we good?

MR. LONGSTRETH: We are good. Thank you.

COMMISSIONER EDGAR: Okay. All right. Go

ahead. Thank you.

MS. BROWNLESS: Thank you.

CROSS EXAMINATION

BY MS. BROWNLESS:

Q. Mr. Rufo, I believe you stated that GDS had one-day access to the Itron staff, is that correct, here in Tallahassee?

A. There -- in response to some requests that they made, Mike Ting of Itron provided a review of models and methods with GDS staff for approximately a day, maybe six hours by phone. And the models and data were available locally and they were sitting here in Tallahassee at the law offices of Ms. Clark.

Q. Okay. And help me understand. When you say the models and data, the DSM ASSYST model was available to be run in Tallahassee?

A. That's correct.

Q. Okay. Did Itron give GDS the ability to verify Itron results by inputting the same data and producing the same results?

A. To the best of my knowledge, we were prepared to do so. But as it was reported to me, I was not participating in that meeting, I do not believe they attempted to do so, but I'm not positive about that. But we were certainly prepared to, to do that with them.

Q. Okay. And did Itron allow GDS to input its own data into the DSM ASSYST model and produce results?

A. I don't know. But we were also prepared to do that, as I recall, but I, I can't say for sure.

Q. Thank you. When you were talking about measure costs and how measure costs were developed and used in the technical potential study, am I correct that you started out with a raw measure cost and then it was stacked in a supply curve and thereby adjusted and that's what was used in the technical potential model?

A. Yes. That's, that's correct.

Q. Okay. So to the extent --

A. Although, I just want to clarify, in our report I believe we provide in our appendices both the stacked and the unstacked results.

Q. Okay. Meaning results that would have been the raw data, raw measure cost data?

A. Well, for example, you know, we take the case of solar water heating. The estimated savings, taking the 70 percent times the average consumption of water heating as it stands now, and that would be the standalone case. The stacked case would be reducing water heating consumption first by other measures, energy efficiency measures that were more cost-effective than the solar water heater, so that the base

consumption to which the solar water heating savings was applied was reduced due to the prior application of the other energy efficiency measures. That would be the supply curve case.

Q. Okay. So that -- got it. So that would be, have been used at the very beginning of the analysis in the technical potential study. And was that type of methodology, that stacking, am I correct in equating that to a means of understanding the interaction between available measures, the --

A. It's a technique that we and others have used for a long time to eliminate the double counting that would occur if you summed the unstacked results.

Q. Okay. Got it. And the idea is that you don't get as much savings if other measures are also in effect?

A. Correct.

Q. Okay. And when you got to the achievable potential study, was that type of interactive double counting adjustment made as well?

A. Yes.

Q. Okay.

MS. BROWNLESS: Thank you. That's all I have.

COMMISSIONER EDGAR: Are there questions from staff?

MS. FLEMING: No questions.

COMMISSIONER EDGAR: Anything from the bench? No?

Ms. Clark?

MS. CLARK: No redirect. Thank you.

COMMISSIONER EDGAR: Okay.

MS. CLARK: And I would move exhibits into the record. Just to be clear, those exhibits were marked as 12 through 24 in the testimony, and they are on the prehearing listed as 110 through 122, and I would move those exhibits.

COMMISSIONER EDGAR: Okay. Seeing no objection, Exhibits 110 through 122 are entered into the record.

(Exhibits 110 through 122 admitted into the record.)

And that brings us to 168, and I think we had a question on that one.

MR. LONGSTRETH: And if we could move it into the record subject to confirmation, is that -- or at least if Ms. Clark --

MS. CLARK: I think if we wait, we'll get it confirmed, and I'll work with Mr. Longstreth.

MR. LONGSTRETH: Yeah. That's fine.

COMMISSIONER EDGAR: Okay. And we can maybe

work on that at the lunch break or later today. Does that work for you?

MR. LONGSTRETH: Yes. Yeah. I will. Absolutely.

COMMISSIONER EDGAR: Okay. All right. Then I believe, Mr. Rufo, that you are excused.

THE WITNESS: Thank you.

COMMISSIONER EDGAR: Thank you.

Okay. So my understanding is there has been discussion about moving Witness Steinhurst up; is that correct?

MR. LONGSTRETH: That is correct.

COMMISSIONER EDGAR: Okay. Is there objection or comment from any of the parties?

MR. BURNETT: No, ma'am, Madam Chair. But if I may, I'm pleased to announce that, consulting with Gulf, TECO and Power & Light, we've agreed that only one attorney from our group is going to cross. So that -- and that's going to be the same for all the intervenor witnesses, to move the process along.

COMMISSIONER EDGAR: Thank you.

MR. BURNETT: So just so you can take that into consideration for your logistics, ma'am. I'll be the only one asking cross.

COMMISSIONER EDGAR: Okay. I'm pleased to

hear that. Thank you all for your cooperation.

MR. BURNETT: Yes, ma'am.

COMMISSIONER EDGAR: Okay. Then --

MR. YOUNG: Madam Chairman, with that --

COMMISSIONER EDGAR: Yes, sir.

MR. YOUNG: With this change, could we have about four or five minutes to get organized?

COMMISSIONER EDGAR: Absolutely.

MS. BROWNLESS: Are we going to take a break?

COMMISSIONER EDGAR: Well, okay. Hold for a second. We're still on the record.

Mr. Steinhurst, I'm not sure what the time constraints are, but do you want to share that or not? I don't mean to --

MR. LONGSTRETH: I believe he's -- if we took a -- well, yeah, why don't you --

COMMISSIONER EDGAR: Mr. Jacobs.

MR. JACOBS: We conferred with counsel, and based on what our understanding is of what the time commitment might be for Mr. Steinhurst's examination, we think it might be reasonable to try to get him done in advance of the lunch break. But I assured Mr. Burnett that if it appears that that is moving beyond that, we'll be happy to do a break at the appropriate time.

COMMISSIONER EDGAR: Okay.

MR. BURNETT: My best guess, I've got 20 minutes, as long as the witness cooperates.

COMMISSIONER EDGAR: Okay. Let me just ask, with our -- hold on. For our court reporter, if we take five, can we come back and then take a little later lunch break than I had thought? Commissioners, does that work for you to try to accommodate to the best of our ability? Okay.

We will take five minutes, and I do mean five, and then we'll come back and we will call our next witness. And then after that we will take a longer lunch break.

Thank you. We're on break.

(Recess taken.)

MR. JACOBS: Thank you, Madam Chair.

NRDC and SACE call Dr. William Steinhurst to the stand.

Dr. Steinhurst, have you been sworn, previously sworn?

THE WITNESS: No, I have not.

MR. JACOBS: I think we need to swear him.

COMMISSIONER EDGAR: Okay. Let's do that. If you will stand with me and raise your right hand.

WILLIAM STEINHURST

was called as a witness on behalf of NRDC and SACE and,

having been duly sworn, testified as follows:

COMMISSIONER EDGAR: Thank you. Be seated.

DIRECT EXAMINATION

BY MR. JACOBS:

Q. Would you state your name and business address for the record?

A. My name is William Steinhurst. My business address is 45 State Street, Number 394, Montpelier, Vermont 05602.

Q. And, Dr. Steinhurst, have you caused to be filed in these proceedings prefiled testimony?

A. Yes.

Q. And if you were asked the same questions today, would your answers be the same?

A. I have two typographic errata to mention, and I have a revised exhibit, WS-1. Otherwise, yes.

MR. JACOBS: Madam Chair, the parties should have received this in advance. And what has been marked as Exhibit 79, which is Exhibit WS-1 to Dr. Steinhurst's testimony, we provided an amendment. And associated with that is a late-filed deposition exhibit which probably should be appended to Composite Exhibit 4 in the proper, proper amendment to Dr. Steinhurst's deposition transcript. It's helpful here because it explains what revisions were made to Exhibit 79.

COMMISSIONER EDGAR: Ms. Fleming, can you help us work our way through that?

MS. FLEMING: I will try my best, but I'm trying to figure out what this amended Exhibit 79 is. Is it related to Mr. Steinhurst's rebuttal testimony?

MR. JACOBS: Yes. This is Exhibit WS-1 to Mr. -- to Dr. Steinhurst's prefiled testimony.

COMMISSIONER EDGAR: You have an amendment or a correction?

MR. JACOBS: There are corrections. These are essential corrections as explained in the late-filed deposition exhibit.

MS. FLEMING: Well, I don't believe the late-filed deposition exhibit is part of the record. So if Mr. Jacobs, at least for the benefit of myself and all the parties, explained what exactly this amendment entails, that may be a little bit helpful.

MR. JACOBS: I'll be happy to. It might be more appropriate for Dr. Steinhurst to walk through these, these corrections. I don't have a problem if he's okay with doing that.

MR. BURNETT: Madam Chairman, maybe I could offer --

COMMISSIONER EDGAR: Mr. Burnett?

MR. BURNETT: My understanding was prior to

his deposition, Dr. Steinhurst offered some corrections to his testimony. In the course of his deposition he was asked by Mr. Griffin what those corrections were, and that is late-filed 1. So the two of those together would culminate in an amendment to his direct testimony and a late-filed exhibit. We have no objection to the amendment nor the late-filed exhibit, if that's helpful to you.

COMMISSIONER EDGAR: Okay. Do you have copies to distribute?

MR. JACOBS: I think the parties should have them already. If you don't have them, we'll get one for you.

COMMISSIONER EDGAR: Do I have a copy?

MR. JACOBS: If not, we'll get it for you right away.

COMMISSIONER EDGAR: Or is that what's here? Oh, it's right here. All right. Sorry. I'm sorry, Mr. Jacobs, I didn't realize that that had been passed out. Okay. So we are looking at this one page that is headed Steinhurst Prefiled Testimony Typographic Corrections?

MR. JACOBS: That's the late-filed deposition exhibit, correct.

COMMISSIONER EDGAR: So do we need to mark

this, Ms. Fleming?

MS. FLEMING: I would suggest that we do.

COMMISSIONER EDGAR: Okay. Let's -- okay.

MS. FLEMING: My question would be should we mark it as -- I have two pages here, one with respect to more detailed information. Is that with respect to the late-filed --

MR. JACOBS: One is an errata to his prefiled testimony.

MS. FLEMING: Okay. Which is this sheet?

MR. JACOBS: Yes. And the other page describes what the modifications were to his exhibit in his prefiled testimony. I would think they would be different.

COMMISSIONER EDGAR: Okay. Let's go ahead and mark as two separate documents, if we can.

MR. JACOBS: Yes. Now --

COMMISSIONER EDGAR: So the first one is headed Steinhurst Testimony Errata -- let me get there, Mr. Jacobs -- will be 169. Okay. And then the second one page we will mark as 170, late deposition exhibit, Steinhurst. Okay. Are we all there?

(Exhibits 169 and 170 marked for identification.)

Okay. Mr. Jacobs.

MR. PERKO: Excuse me, Madam Chair. I'm sorry.

COMMISSIONER EDGAR: I'm sorry. Yes.

MR. PERKO: I hate to complicate things, but my copy of amended 79 is difficult to understand because it appears that, you know, it's replacing WS, or the old exhibit, which was printed on landscape and this one is on portrait, so it's difficult to line up the exhibit. And I was just wondering if -- you don't need to do it right now, but if we could get a copy that's printed on landscape so we can understand it, I'd appreciate it.

COMMISSIONER EDGAR: Mr. Jacobs.

MR. JACOBS: I don't think we have a problem with doing that, Madam Chair.

MR. PERKO: Thank you.

COMMISSIONER EDGAR: Okay. All right. Thank you for bringing that to our attention.

Okay. I think we're ready.

MR. JACOBS: Thank you.

BY MR. JACOBS:

Q. Dr. Steinhurst, do you have a summary of your testimony?

A. Yes, I do.

MR. JACOBS: I'm sorry. Strike that. Before we go there.

Madam Chair, then, without further objection, we would ask that the prefiled direct testimony of Dr. Steinhurst be inserted into the record as though read.

COMMISSIONER EDGAR: The prefiled direct testimony will be inserted into the record as though read, and we will take note of Exhibit 169.

MR. JACOBS: Thank you.

Q. Please state your name and occupation.

A. My name is William Steinhurst, and I am a Senior Consultant with Synapse Energy Economics (Synapse), which is headquartered in Cambridge, Massachusetts. My business address is 45 State Street, #394, Montpelier, Vermont 05602.

Q. On whose behalf did you prepare this prefiled testimony?

A. I prepared this testimony on behalf of the SACE-NRDC.

Q. Please summarize your qualifications.

A. I have over twenty-five years' experience in utility regulation and energy policy, including work on renewable portfolio standards and portfolio management practices for default service providers and regulated utilities, green marketing, distributed resource issues, economic impact studies, and rate design. Prior to joining Synapse, I served as Planning Econometrician and Director for Regulated Utility Planning at the Vermont Department of Public Service, the State's Public Advocate and energy policy agency. I have provided consulting services for various clients, including the Connecticut Office of Consumer Counsel, the Illinois Citizens Utility Board, the California Division of Ratepayer Advocates, the D.C. and Maryland Offices of the Public Advocate, the Delaware Public Utilities Commission, the Regulatory Assistance Project, the National Association of Regulatory Utility Commissioners, the National Regulatory Research Institute, AARP, the Union of Concerned Scientists, the Northern Forest Council, the Nova Scotia Utility and Review Board, the U.S. EPA, the Conservation Law Foundation, the Sierra Club, the Oklahoma Sustainability Network, Illinois Energy Office, the Massachusetts Executive Office of Energy Resources, the James River Corporation, and the Newfoundland Department of Natural Resources.

I hold a B.A. in Physics from Wesleyan University, and an M.S. in Statistics and Ph.D. in Mechanical Engineering from the University of Vermont.

Q. Please summarize any prior experience working on energy efficiency.

A. I have testified as an expert witness in approximately 30 cases on topics including utility rates and ratemaking policy, prudence reviews, integrated resource planning, demand side management policy and program design, utility financings, regulatory enforcement, green marketing, power purchases, statistical analysis, and decision analysis. I have been a frequent witness in legislative hearings and represented the State of Vermont, the Delaware Public Utilities Commission Staff, and several other groups in numerous collaborative settlement processes addressing energy efficiency, resource planning and distributed resources.

I was the lead author or co-author of Vermont's long-term energy plans for 1983, 1988, and 1991, as well as the 1998 report *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan*, as well as Synapse's study *Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers*. I was recently commissioned by the National Regulatory Research Institute to write *Electricity at a Glance*, a primer on the industry for new public utility commissioners, which included coverage of energy efficiency programs.

Q. Have you previously testified before the Florida Public Service Commission? ("the Commission" or "PSC")?

A. No.

Q. Please summarize your testimony.

A. I respond to and provide recommendations for certain items in the April 14, 2009, Staff Proposed Issues List ("Staff Issues List"). I also recommend for the Commission's consideration several aspects of good program design and implementation that should be taken into account in goal setting and elsewhere.

My recommendations are made in light of my understanding of Florida Statute and the recent FEECA bill (Fla. St. §§ 366.80-85, 403.519) and how they would be applied by an expert in utility resource planning and are guided by its statement of the Florida Legislature's policy, which reads in relevant part:

> 377.601. Legislative intent
>
> * * *
> (2) It is the policy of the State of Florida to:
> (a) Develop and promote the effective use of energy in the state, and discourage all forms of energy waste, and recognize and address the potential of global climate change wherever possible.
> (b) Play a leading role in developing and instituting energy management programs aimed at promoting energy conservation, energy security, and the reduction of greenhouse gas emissions.

Q. How is your testimony organized?

A. I address, in order, several of the issues listed in the Staff Issues List. Following that, I discuss several aspects of good program design and implementation and how they should be taken into account in goal setting in this proceeding.

ISSUE 2: Did the Company provide an adequate assessment of the achievable potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems?

Q. Do you have any concerns about the manner in which utility avoided cost estimates for energy and deferred capacity were prepared?

A. Several. Below, I discuss some of the ways in which avoided cost estimates ought to be done. NRDC-SACE witness Mosenthal discusses how DSM potential screening should be done. However, it is very hard to determine specifics on what was done by the FEECA utilities. Little relevant quantitative information was provided by most of the FEECA utilities in their direct case. Certain discovery responses that may be relevant to this question were received just before the deadline for filing this testimony, and we have not yet been able to review those responses. I may need to provide updated testimony once we have reviewed that data.

Q. Is it appropriate to accord DSM and demand-side renewables zero capacity value prior to the date of the next needed generation unit?

A. Not necessarily. First of all, there may be value in pure demand reductions, especially ones that are dispatchable or remotely controllable or ones that have a high coincidence with system peaks, even if the generation system is relative to the required level of reserves. Benefits in that situation can include extra on-peak T&D loss reductions, longer life for transformers and other T&D equipment as well as generators dispatched for spinning reserve, ancillary services value delivered, reduced clearing prices for ancillary services, and the ability to make off-system sales of firm capacity to neighboring utilities or regions. Air quality may be improved due to reduced operation of comparatively inefficient peakers or older, dirtier cycling plants to meet reserve

requirements or super-peak loads; those air quality benefits are likely to accrue during **potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems?**

Q. Do you have any concerns about the manner in which utility avoided cost estimates for energy and deferred capacity were prepared?

A. Several. Below, I discuss some of the ways in which avoided cost estimates ought to be done. NRDC-SACE witness Mosenthal discusses how DSM potential screening should be done. However, it is very hard to determine specifics on what was done by the FEECA utilities. Little relevant quantitative information was provided by most of the FEECA utilities in their direct case. Certain discovery responses that may be relevant to this question were received just before the deadline for filing this testimony, and we have not yet been able to review those responses. I may need to provide updated testimony once we have reviewed that data.

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I recommend that the Commission require the FEECA utilities to account for the value of the sales of surplus capacity and all other products or resources freed up by DSM in both the near term and the long term. If they are really claiming ZERO avoided capacity cost for some period, then they should be required to demonstrate that they have "gone to the market" with capacity for sale in an manner verifiably designed and executed to maximize the value of capacity for sale, and that no one was interested.

Q. Does the avoided cost method used by the FEECA utilities appear to properly preserve the capacity value associated with DSM that was approved in a previous FEECA goal-setting proceeding and relied upon in subsequent resource plans and need determination proceedings?

A. No, it appears that the proposed new goals for 2010-2014 are based on a zero or near-zero capacity value for the early years of their measure life. In contrast, when goals were set for that time period in the 2004 FEECA goal-setting proceeding, programs implemented in those years were assumed to contribute to the forecast capacity need of each utility.

For example, in the Standard Offer Contract filed by FPL on May 20, 2008, the Company's Avoided Unit has an in-service date of June 1, 2014. Under that contract, the capacity value is approximately zero until June 1, 2014.

Consider a hypothetical energy efficiency measure with a measure life of four years, installed at two locations on June 1, 2012 and June 1, 2014. The measure installed on June 1, 2014 would have approximately twice the capacity value than the measure installed on June 1, 2012 since it would receive capacity value credit for the full four years of its measure life rather than only the final two years of its measure life.

However, in the previous 2004 goal-setting proceeding, FPL appears to have relied upon an Avoided Unit with an in-service date of June 1, 2007 (Petition for Approval of Florida Power & Light Company's Standard Offer Contract, December 5, 2003, Docket 031093). This proceeding would also have covered the two hypothetical measures I described above, but would have assigned them each an approximately equal avoided capacity cost value since they would both have been installed after the effective date of the in-service date of the Avoided Unit.

The current effective goals for FPL and the other utilities are based in part on the avoided capacity values utilized in the 2004 proceeding. Subsequently, FPL and other FEECA utilities filed resource plans and petitions for determination of need that relied, in part, upon meeting those goals and installing that capacity.

In this proceeding, the FEECA utilities propose to reduce their goals for the five year period based, in part, on a method of analysis that includes approximately zero capacity value for several years until the utility's next Avoided Unit in-service date is reached. Yet measures implemented during this time period, at least up to the levels anticipated in the utilities' existing resource plans, obviously do have capacity value since that capacity has been relied upon in the resource plans and the utilizes have already or will soon avoid the need to build, purchase or otherwise obtain alternate capacity to meet forecast capacity needs.

Given this apparent change, I recommend that the Commission require the utilities to justify their method for valuing avoided capacity cost during the first five years of the plan and explain why it does not reflect the value that was attributed to meeting the goals in the prior FEECA goal-setting proceeding. There may be some need

to update these values to place them in a consistent analytic framework (e.g., taking *inflation into account*).

Q. In identifying the avoided generation unit benefit, do the utilities ever consider the potential to avoid or delay, in whole or in part, the construction of a nuclear unit?

A. I cannot determine what the utilities actually do from the materials they filed. However, it appears based on Wilson's testimony that the utilities have never incorporated the capacity value of any nuclear plants, including nuclear plants that are merely proposed, in determining the avoided cost of capacity for DSM screening.

Even if a nuclear unit were actually under construction, there is, until quite far along, a large "to-go" cost that could be avoidable. Failure to cancel a unit that could be avoided by DSM less expensive than that remaining "to-go" cost would constitute imprudent management. Allowing in the avoided cost calculation for the possibility of canceling a nuclear construction project is quite reasonable.

Even big supply side resources can be avoided or deferred by small DSM. First, aggressive implementation of many small DSM measures can, taken together, amount to a large block of avoided demand. Second, because load forecasts and resource needs are not known with certainty, it is possible that a small amount of DSM delivered could allow deferral of a large unit on a statistical basis. Also, if Florida looks at avoided costs on a utility-specific basis, a particular utility's DSM achievement could quite reasonably

allow it to have a smaller share in a nuclear construction project (initially, or by selling an interest in an underway project).[4]

Q. Were the baseline assumptions used by the utilities (growth rates, capital costs, fuel costs, etc.) appropriate? Were the sensitivity analyses useful in identifying the impact of varying these parameters on the total economic potential?

A. I was unable to determine from the materials filed by the utilities whether those assumptions and analyses were appropriate. Certain discovery responses that may be relevant to this question were received just before the deadline for filing this testimony, and we have not yet been able to review those responses. I may need to provide updated testimony after reviewing that data.

Q. Are there other shortcomings in the way the FEECA utilities handled other benefits of DSM or externalities in establishing the benefits of energy efficiency?

A. Yes. I discuss carbon externalities below in my response to Issue 5. In addition to the non-electric benefits mentioned earlier in my response to this Issue 2, I would like to describe three other problems with the FEECA utilities' handling of the benefits of DSM and demand-side renewables.

The first is the potential for energy efficiency and demand-side to delay or moderate constraints on Florida's economy. It is my understanding that Florida does not have major problems today with levels of criteria pollutants (under the Clean Air Act Amendments or CAA). However, if a situation were to develop where one or more of those pollutants was out of compliance or was expected to become out of compliance, there are provisions in the CAA that could limit commercial or industrial development in

[4] For further discussion of these points, see, for example, http://www.synapse-energy.com/Downloads/SynapseReport.2005-09.UNFCCC.Using-Electric-System-Operating-Margins-and-Build-Margins-.05-031.pdf at 11-13.

the affected regions of the state or require expensive retrofits of fossil fueled power plants to come back into compliance. Energy efficiency measures and programs would then become the Florida economy's first line of defense. This may be a hypothetical at this point, but I recommend that the Commission consider such benefits in exercising its discretion in setting goals for utility energy efficiency and demand-side renewables.

Second, there are significant benefits from DSM for at-risk citizens. By at-risk, I mean limited-income, elderly, disabled and ill residential customers and small businesses. To the extent that utility energy efficiency programs deliver bill reductions to at-risk residential customers, they will benefit from both more affordable heating and cooling of their residences and more disposable income for food, medicine and other expenses that support well-being. (This applies to institutional customers serving such populations as well, including nursing homes and hospitals.) The Commission should take that into account in setting goals and should disregard any claims that utility energy efficiency programs cannot benefit those customers because they are renters, live in manufactured housing or other justifications. Programs can be fielded that are feasible for those customers and attractive to them. There are also secondary benefits that flow to the State and all taxpayers (and ratepayers) from those benefits. For example, increased well-being, more comfortable living environments, and more disposable income available for medical care and other expenses can reduce the burden on public assistance of all kinds and health care systems, including shifting of costs to other payers.

Third, energy conservation programs provide additional benefits by acting as a hedge against volatile market prices for power and generating fuels. Utilities often invest in relatively high cost resources to ensure system reliability and reduce the risk of being

required to make expensive market power purchases. The premium price associated with these investments can be thought of as hedging against the uncertainty in the supply and demand forecast.

The most sophisticated treatment of this issue that I am aware of is the resource planning process used by the Northwest Power and Conservation Council. The NWPCC considers nine sources of uncertainty in its resource planning model for the Fifth Power Plan, and may add three additional sources of uncertainty to its Sixth Power Plan model. The sources of uncertainty considered in that plan are:

- Load requirements
- Gas price
- Hydrogeneration
- Electricity price
- Forced outage rates
- Aluminum price (may be dropped in Sixth Power Plan)
- Carbon allowance price
- Production tax credits
- Renewable energy credit (green tag value)
- Power plant construction costs (may be added in Sixth Power Plan)
- Technology availability
- Conservation costs

The NWPCC resource plan includes options to install various energy resources, including new power plant construction and new conservation and demand response measure installation. The decision to move forward with a power plant entails certain

construction, operation and retirement risks, which may be matched with the plant costs and benefits. Variation of the sources of uncertainty listed above affect the magnitude of the risks, costs and benefits.

The NWPCC planning process considers a wide range of plant build options ("plans") as well as variations in the sources of uncertainty listed above. Modeling conducted for the plan demonstrates that resources used to minimize the risk of cost spikes by definition cost more than their expected value. The premium price for these resources, whether they are peaking plants or energy conservation resources, is necessary to reduce potential price volatility.

In a study of the hedging value of energy conservation, the NWPCC found that under least cost planning the effect of energy conservation is to defer single cycle combustion turbines. The study indicates that this is counter to traditional uses of low-capital cost resources for risk management (e.g., combustion turbines) rather than high-capital cost resources (e.g., conservation). The study indicates that the advantage of conservation is that it delivers energy savings value to the system under any scenario, while a combustion turbine only delivers value if it is actually needed. For this reason, conservation has a quantifiably lower premium cost associated with reducing system cost risk, and is thus the hedging instrument of choice in the NWPCC.

The NWPCC estimated that the risk premium represented by a combustion turbine unit is about 90% of total cost, in comparison to lost opportunity conservation (e.g., new construction or replace on burnout measures) with a premium cost of 40% of total cost and discretionary conservation with almost no premium cost. The discounted

risk premium available from conservation measures was estimated with a conservation cost of $50 per MWh, which is higher than typical conservation measure costs.

In summary, the NWPCC has demonstrated the value of its policies to reduce system cost risk by accelerating investment in energy efficiency programs.

It is interesting to note that FPL makes a quite similar point in its Need Study for the Turkey Point nuclear units in the section titled "Discussing the Hedge Provided by Fuel Diversity." The study states, "Because the price of nuclear fuel has been and is projected to remain relatively stable, and because changes in nuclear fuel prices are not directly linked to changes in the prices of natural gas and fuel oil, having a fuel diverse portfolio that includes significant contributions from nuclear fuel helps dampen the effect of volatility in natural gas prices. For this reason the addition of Turkey Point 6 & 7 will help dampen the volatility in system fuel costs and make the cost of electricity more stable and predictable." (FPL, "Need Study for Electrical Power, Docket No. 070650-EI, p. 33) Considering that the price of "energy efficiency fuel" is almost always zero, it is evident that it would offer an even greater hedge value than nuclear fuel can offer to dampen the volatility in system fuel costs.

Q. Overall, how does the method used by Florida utilities compare with methods for establishing the value of energy efficiency in other jurisdictions?

A. The FEECA utilities took advantage of certain economies of scale and scope by working together with Itron. However, the way in which this was done has led to numerous concerns outlined here and in the testimony of other NRDC-SACE witnesses. I recommend the approach used by the New England ISO. The electric and gas utilities, together with relevant state agencies and various intervenor organizations, work together

to calculate consistent avoided costs for electricity and gas on a regional basis. This is done every two years, and the various program administrators in their DSM plan filings use the results.[5]

Benefits of the AESC approach include: consistency between electric and gas avoided costs, consistency across utilities (results are not identical, but are consistent with differences driven by real differences in portfolios and load shapes), cost efficiency (in that there is one big model and process rather than several), transparency (anyone can participate in the AESC study group and assumptions and results are discussed openly and documents are posted to a project-specific website), and buy-in (at the end the groups seem to be in reasonable agreement, perhaps not as to every detail, but as a general matter leading all groups to accept the results).

Q. Are there other system benefits to energy efficiency that were not considered, for example the insurance (or hedging) value of energy efficiency against fuel cost spikes?

A. I was not able to determine from the FEECA utilities' Testimony or information available through the Collaborative process whether other system benefits were considered. Discovery responses that may be relevant to this question were received just before the deadline for filing this testimony, and we have not yet been able to review those responses. Accordingly, I may need to provide updated testimony once we have reviewed that data.

However, the Commission should understand that there are a number of benefits that accrue to states that pursue energy efficiency programs. Aside from energy and

[5] *See*, for example, http://www.synapse-energy.com/Downloads/SynapseReport.2007-08.AESC.Avoided-Energy-Supply-Costs-2007.07-019.pdf. The 2009 AESC study is nearing completion, but not yet available.

capacity cost savings and avoided CO2 costs, these benefits include non-electric benefits such as water and heating fuel savings, lower prices due to the demand-reduction-induced price effect (DRIPE), economic stimulus, job creation, risk reduction, and energy security. DRIPE benefits are being scrutinized by an increasing number of jurisdictions, including most of the New England states, the NY State Energy Research and Development Authority (NYSERDA). New England, New York, Illinois, and Oklahoma regulators, among many others, consider energy security, job creation and economic stimulus benefits. Jurisdictions that rely on risk reduction benefits are discussed below in this testimony. The *NAPEE* discusses job creation, economic development benefits, and risk reduction; it also places water savings, other fuel savings and environmental benefits explicitly as part of the TRC.[6]

Many electric efficiency measures also deliver non-electric benefits. Insulation and air sealing measures not only save on air conditioning costs in the summer months, but also save the customer money on heating fuels. High efficiency clothes washers use less water and impose smaller burdens on sewage treatment plants than standard, top-load models. LED exit signs and long lasting fluorescents reduce the maintenance cost of changing light bulbs and reduce air conditioning requirements.

Reductions in the quantity of energy and capacity that customers will need in the future due to efficiency and/or demand response programs result in lower prices for electric energy and capacity in wholesale markets. Lower demand means that the wholesale markets do not need to purchase the next most expensive unit. This benefit from utility energy efficiency programs reducing market prices is referred to as the Demand-Reduction-Induced Price Effect (DRIPE) and helps all customers, not just

[6] *NAPEE*, Chapter 6, generally, and especially p. 6-22.

participants. It can also reduce the price of natural gas for all gas consumers, not just utilities. The electric market clearing price benefit during peak hours can be much higher, and also has a dampening impact on price volatility. DRIPE impacts are significant in absolute dollar terms, since very small impacts on market prices, when applied to all energy and capacity being purchased in the market, translate into large absolute dollar amounts. Moreover, consideration of DRIPE impacts can also increase the cost-effectiveness of peak-focused EE measures on the order of 15% to 20%, because the estimated absolute dollar benefits of DRIPE are being attributed to a relatively small quantity of reductions in energy.

The economic stimulus provided by energy efficiency occurs, in part, through a reduced dependence on imported fossil fuels and an increased focus on development of in-state solutions. Local resources are used to manufacture, construct or install, and operate energy efficiency technologies, thereby creating direct local jobs. As a result, energy efficiency can provide new sources of income for those who work in struggling industries.

Energy efficiency creates both direct and indirect jobs. Because the focus of the effort is not simply in manufacturing, but also in R&D, service and installation, these are well-paying, skilled positions that are not easily outsourced to other states and countries. Direct jobs result from the use of local skilled workers in the development, manufacture, construction, installation and operation and maintenance of energy efficiency technologies. Indirect jobs result from development of energy efficiency technologies as the payment of wages and purchase of goods and services in the economy results in additional job creation as workers and firms supplying goods and services to the energy

efficiency industry, in turn, make purchases from the local economy. In addition, as energy efficiency reduces energy bills, businesses and households gain increased discretionary income which becomes available to purchase goods and services or for investment. This drives jobs in those markets and investment areas.

Energy efficiency reduces risks associated with fuel price volatility, unanticipated capital cost increases, more stringent regulations, fossil fuel supply shortages, and climate change. The highly volatile nature of natural gas prices has been a primary driver of more volatile electricity rates. This situation is unlikely to change in the near future, no matter which type of new supply is developed and brought into service.

Another risk avoided by energy efficiency deals with the long development timelines and inflexibility associated with conventional generation (compared to the short lead time and maneuverability of energy efficiency programs) exposes these resources to longer-term increases in the cost of labor and materials – unanticipated cost increases which increase the risk of disallowance and stranded costs and many other potential changes in the economy that can invalidate the planning assumptions originally used to justify them. It can take more than a decade before new coal and nuclear plants are operational. Conversely, energy efficiency is more nimble and less risky, both financially and environmentally. Aggressive energy efficiency eliminates the risk associated with committing to huge investments a decade or more before they will be needed.

Other downsides faced by fossil fuel plants include longer-term supply concerns due to finite supply and transportation bottlenecks. Recent issues with transporting coal have caused some existing coal plants to buy supplies at higher prices on the spot market

in order to meet electricity demand. Energy efficiency is not subject to supply and transportation constraints that impact fossil fuels.

Fossil fuel plants are often sited at sea level or along rivers because they require large amounts of cooling water. Risk factors such as sea level rise, storm surges, and drought, which have become more frequent due to climate change, pose concern, as do risks of thermal and other forms of pollution of marine and estuarine habitats. Implementation of energy efficiency reduces greenhouse gas emissions, which reduces the risk of adverse effects from climate change without adding other risk factors.

Energy efficiency reduces competition between states for fuels to support electricity production, competition between states for electricity imports, and dependence on imported oil for electricity production. Oil prices have spiked above $135 per barrel and, long term, will continue to rise due to a number of factors including diminishing supply, increased demand in many countries and additional costs associated with safeguarding supplies located in countries suffering from economic, social and political instability. This cost increase makes increased reliance on oil unlikely. Energy efficiency can help states meet future demand increases and reduce dependence on out-of-state or overseas resources.

Early adoption of energy efficiency policies could help states garner additional allowances (i.e., funds) as part of any national greenhouse gas programs that are enacted by Congress. Following the trend established by the Regional Greenhouse Gas Initiative (RGGI), global warming bills introduced in Congress have tended to include provisions to auction allowances, rather than to give them away free to sources, but also to provide additional allowance allocations to (1) utilities and states that take early action by

establishing binding greenhouse gas reduction targets, (2) utilities and states reducing greenhouse gas emissions and (3) states with more aggressive greenhouse gas reduction targets than equivalent Federal programs.

Issue 4. Do the Company's proposed goals adequately reflect the costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions, pursuant to Section 366.82(3)(b), F.S.?

Q. Do you have an opinion on this issue?

A. Yes, I do. The FEECA utilities' proposed goals do not adequately reflect the costs and benefits of utility energy efficiency to the general body of ratepayers as a whole. In part, this goes back to the concerns raised in response to Issue 2. Further, the new FEECA legislation requires (explicitly or through broad policy statements) inclusion in cost-effectiveness testing of benefits that are not reflected in the utility studies and goals.

Q. Do the utilities' goals flow from a complete and appropriate estimate of the technical potential for energy efficiency in Florida?

A. Not entirely. As explained by NRDC-SACE witness Wilson in his prefiled testimony, the overall technical potential should be increased by at least 8%, from 34% to 42% statewide due to a short list of very specific omissions.

> A reasonable estimate of the additional technical potential that the Commission might reasonably add to the findings of the technical potential study is 12,700 GWh, including 3,400 GWh savings from the excluded end-use sectors and 10,600 GWh from the overlooked measures, of potential energy savings. This represents an increase of approximately 8%, or a total statewide technical potential of 42% rather than the 34% reported by Itron.

Q. Do the utilities' goals flow from a complete and appropriate estimate of the economically achievable potential for energy efficiency in Florida?

A. No, they do not. In addition to an underestimate in the technical potential—the starting point for further analysis—of at least 8%, there a number of other errors and omissions were made. NRDC-SACE witness Mosenthal sums up his investigation of the achievable potential studies this way:

> The result of the achievable potential analysis on its face is simply not a credible estimate of the maximum amount of DSM resources that could be captured cost-effectively in Florida.

Among the errors and omissions Mr. Mosenthal identified in his review are:

- unreasonable assumptions and criteria;
- a flawed understanding of the principals of integrated resource planning and the language of the new Statute;
- unreasonably low penetration rates for energy saving measures;
- inaccurate cost-effectiveness analysis; and
- failure to consider new and innovative program strategies that could result in much higher penetration of cost-effective efficiency and demand resources

So, overall, given the shortcomings identified by those witnesses and in my own testimony, one must conclude that

> (1) the benefits of avoided energy and capacity including, but not limited to, carbon emissions,
>
> (2) the technical potential (which would certainly increase with a fuller assessment of the benefits of utility energy efficiency), and

(3) the achievable potential (which, again, would certainly increase with a fuller assessment of the benefits of utility energy efficiency and the technical potential), as estimated by the utilities do not amount to a complete and appropriate estimate of the economically achievable potential for energy efficiency in Florida.

ISSUE 5: Do the Company's proposed goals adequately reflect the costs imposed by state and federal regulations on the emission of greenhouse gases, pursuant to Section 366.82(3)(d), F.S?

Q. Do you have an opinion on this issue?

A. I do. In summary, the answer is "no."

Q. Please give an example.

A. Per the testimony provided by JEA witness Kushner (at page 6), CO_2 allowance prices are not included in the fuel price forecast. Witness Kushner also testified that such prices are included in the sensitivity analyses. See Kushner Exhibit BEK-2, page 1 of 1, which provides CO_2 allowance price assumptions. The data contained in this Exhibit are from EIA's input to S 2191 (Lieberman-Warner).

Q. Do the data provided by witness Kushner (and also mentioned by other FEECA witnesses) adequately address the requirements of Section 366.82(3)(d) of the Florida Statutes?

A. As I understand them, in part yes and in part no. The data provided by witness Kushner and other FEECA witnesses address potential federal legislation. Florida also has state requirements to develop regulations to limit greenhouse gas emissions. Also, the data cited by witness Kushner and other FEECA witnesses are taken from US Senate bill 2191, also referred to as the Lieberman-Warner bill, which is from 2007 and now obsolete.

Q. Did any other FEECA utility witnesses rely on that data?

A. Apparently. TECO witness Bryant also mentions the CO_2 price per ton range used for federal legislation. Bryant direct prefiled at 33.

Q. Leaving aside for a moment the numerical values adopted by FEECA utility witnesses, how were the values applied to reflect those costs in their proposed goals or measure screening?

A. It appears that at least some of the FEECA utilities merely ran additional sensitivity scenarios reflecting certain low and high carbon costs. *See*, for example, Kushner direct prefiled at 6. Likewise, it appears that those sensitivity scenarios had no effect on some of the FEECA utilities' proposed DSM goals. *See*, for example, Bryant direct prefiled at 37, lines 5–17. Gulf Power's witness Floyd, on the other hand, states that that company included a "mid-range" value of $20 per ton (2014 dollars, escalating thereafter at an unstated rate) and FPL witness Sims states that his company used a "base case" value of $14 in 2013 rising to $23 in 2018 (both nominal dollars). Sims Exh.-SRS-7.

I consider those values to be at the extreme low end of the reasonable range of estimates and inappropriate as a basis for meeting the requirement to adequately address the requirements of Section 366.82(3)(d) of the Florida Statutes.

Q. Please explain.

A. I will first address federal legislation to limit greenhouse gas emissions, and later focus on Florida's state efforts to reduce such emissions.

With respect to federal legislation, the data from S 2191 are now two years old and were based upon legislative objectives that have since become more comprehensive and more stringent. Recent bills introduced during 2009, notably Waxman-Markey, reflect deeper GHG reductions. The utilities high price assumption reference is based on federal legislation that would prohibit or severely restrict the use of international offsets.

This outcome is not likely. The Waxman-Markey bill provides for a 50/50 split between domestic and international offsets, and would permit the quantity of international offsets to increase, if sufficient domestic offsets were not available. We would expect the effect of allowing offsets to be used, and to increase the percentage of international offsets if insufficient domestic offsets are not available, will be to keep allowance prices below the high price assumptions used by the utilities in their assessment of federal greenhouse gas legislation. On the other hand, the utilities' low and mid-range CO_2 allowance prices are below the ranges I would recommend.

Q. Can you give us some examples of CO_2 allowance prices used in utility resource planning?

A. Yes. In its 2005 Integrated Resource Plan, Avista used a range from $7 to $25/ton for the 2010 planning year and from $15 and $62/ton for the 2023 planning year. Portland General Electric and Pacificorp adopted a range of $0 to $55 beginning in 2003 and 2004, respectively. Idaho Power adopted a range of $0 to $61 starting in 2008. Northwest Energy adopted a range of $15 to $41 starting in 2005. (I would not consider $0 to be a credible low case value at this time.) Those values are all in 2005 dollars.[7]

The California PUC requires that regulated utility IRPs include carbon adder of $8/ton CO2, escalating at 5% per year as of 2005.[8] The Oregon PUC has adopted a range from $0 to about $85 (levelized 2013-2030 in 2007 dollars). Other PUCs have adopted ranges from the teens to $35–$45 (also levelized 2013-2030 in 2007 dollars).[9]

[7] David Schlissel, Lucy Johnston, Bruce Biewald, David White, Ezra Hausman, Chris James, and Jeremy Fisher, *Synapse 2008 CO2 Price Forecasts*, at 21. Available at http://www.synapse-energy.com/Downloads/SynapsePaper.2008-07.0.2008-Carbon-Paper.A0020.pdf
[8] CPUC Decision 05-04-024
[9] Schlissel, et al., op. cit.

Various analyses of a number of proposed federal climate change laws indicate early year costs of nearly $10 to over $60, with the 2018 range going from just over $10 to about $90 with all the analyses rising steadily thereafter (in 2007 dollars).[10] The U.S. Department of Energy has recently issued estimates with a low-range value of $2, a mid-range value of $33 and a high-range value of $80, escalating at 3% per year.[11]

Q. Do you have recommendations for what CO_2 allowance prices the utilities should use for planning utility energy efficiency programs and goal setting?

A. Yes. I recommend that, at a minimum, the Commission require the use of allowance prices with a low-case allowance price of $15 per ton, a mid- or base-case allowance price of $30 per ton, and a high-case allowance price of $78 per ton (all levelized over the period 2013-2030, in 2007 dollars). I believe that a reasonable figure for the *long-run* marginal cost of carbon emissions is around $80 (in 2008 dollars, about $78 in 2007 dollars) and recommend that the Commission require high case analysis reflecting that price be analyzed and considered in permanent goal setting.

Q. What are the potential effects from using those allowance prices?

A. There are two main benefits. First, those allowance prices will better reflect the environmental and public health externalities associated with the combustion of fossil fuels. Second, including a CO_2 allowance price enables more cost-effective energy efficiency measures to be adopted and increases the potential to develop additional renewable energy resources.

I believe the recommended mid-range allowance price forecast is close to what greenhouse gas allowances will initially sell for in a federal program and much more

[10] Ibid., Fig. 5.
[11] U.S. DOE, *Energy Conservation Program: Energy Conservation Standards and Test Procedures for General Service Fluorescent Lamps and Incandescent Reflector Lamps*, pp. 14-15.

realistically reflects current expectation than the utility witnesses' assumptions would, even if they had allowed those prices to influence their proposed goals. At the same time, I believe using unrealistically high allowance prices, like those included in the utilities' high price assumptions, do a disservice by overstating the potential costs of a federal program.

Q. Did the FEECA utilities address the potential for state regulation of greenhouse gases in Florida?

A. None of the utilities testimony or CO_2 allowance price assumptions includes an analysis of state level GHG regulation.

Q. What state level regulations or programs have been announced or considered in Florida?

A. Governor Crist's Executive Order 07-127, as I understand it, requires the Florida DEP to develop a cap and trade program with the following GHG reduction requirements: by 2017, reduce GHG emissions to 2000 levels; by 2025 reduce GHG emissions to 1990 levels, and by 2050, reduce GHG emissions to 20% of 1990 levels. The October 15, 2008, report from the Governor's Action Team on Energy and Climate Change recommended that these regulations first focus on the electric sector.[12] The Florida Department of Environmental Protection has undertaken a rulemaking pursuant to legislative authority to develop GHG reduction rules in 2008. (http://www.dep.state.fl.us/air/rules/ghg/electric.htm)

[12] *Florida's Energy and Climate Change Action Plan*, Ch. 4. http://www.flclimatechange.us/ewebeditpro/items/O12F20142.PDF

Q. What would be the effect of Florida adopting regulations to reduce greenhouse gas emissions, independently or through joining a regional program such as RGGI or WCI?

A. One effect relevant to setting goals for utility energy efficiency programs that could arise would be that in-state fossil fueled generators would have to procure adequate CO_2 allowances to cover their annual emissions. Generators with higher CO_2 emissions per MWh would have higher costs of generation than those with lower or no CO_2 per MWh. These higher costs would then enable more cost-effective energy efficiency programs to be adopted, and they would also help to enable development of demand-side and commercial or industrial scale renewable generation.

ISSUE 7 What cost-effectiveness test or tests should the Commission use to set goals, pursuant to Section 366.82, F.S.?

Q. What new statutory language has Florida enacted regarding appropriate tests for cost-benefit analysis of utility energy efficiency?

A. As explained by NRDC-SACE witness Wilson, the 2008 Energy Act amended Fla. Stat. § 366.82(3) provides that in establishing goals for utility energy efficiency, the Legislature now requires that the Commission consider:

a) The costs and benefits to customers participating in the measure.

b) The costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions.

c) The need for incentives to promote both customer-owned and utility-owned energy efficiency and demand-side renewable energy systems.

d) The costs imposed by state and federal regulations on the emission of greenhouse gases.

§ 366.82(3), Fla. Stat. 2008

Of these four provisions, subdivision (b) is the one that, on its own terms, bears on the proper test for the cost-effectiveness of such programs.

Q. In that subdivision (b), what is your understanding of how "costs and benefits" and "to the general body of ratepayers" are applied in practice by experts in DSM program design and implementation?

A. In practice, that phrase "costs and benefits" is used by experts in the field to mean the net present value of the difference in whole-life (or life-cycle) utility cost of service with and without a measure, program or other resource. The phrase "to the general body of ratepayers" is applied to mean the cost of service for the entire body of ratepayers, as a whole, including all the system-wide costs and benefits of the measure, program or other resources.

Q. Is the TRC Test consistent with the manner in which experts in the field would apply the phrase "costs and benefits to the general body of ratepayers as a whole"?

A. Yes.

Q. Is it reasonable to interpret that language as consistent with, requiring the use of, or allowing the use of either the RIM Test for the purpose of deciding whether a given program, measure or other resource is cost effective?

A. No.

Q. Have you reviewed the testimony that Mr. Ralph Cavanagh is submitting in this proceeding?

A. I have and I agree with Mr. Cavanagh's conclusion that, as a matter both of my understanding of the language of the amended FEECA statute and as a matter of sound policy, the TRC test—not the RIM test—should be used when setting goals.

Q. As a policy matter, what cost-benefit test do you recommend for DSM screening, taking into consideration the public interest and the potential impact on economic development?

A. I recommend use of the TRC for program design, goal setting, field screening, and program evaluation. The public interest favors that choice for many reasons, not the least of which is that no other test will lead to resource choices that deliver least cost service to ratepayers. Economic development and the desire for a sound State economy also favor that choice for several reasons including green jobs, said by many to be the likely cutting edge of the future U.S. economy, reduced price volatility, more predictable bills and rates for businesses, and greater economic multipliers for EE (and RE) than for traditional generation).

ISSUE 8: What residential summer and winter megawatt (MW) and annual Gigawatt-hour (GWh) goals should be established for the period 2010-2019?

Q. Do you have a recommendation on this issue?

A. Yes, I do. My quantitative recommendations are provided in Exh. WS-1, together with my recommendations for the commercial/industrial goals, and are explained in my response to Issue 9, below.

ISSUE 9: What commercial/industrial summer and winter megawatt (MW) and annual Gigawatt hour (GWh) goals should be established for the period 2010-2019?

Q. Do you have a recommendation on this issue?

A. Yes, I do. My quantitative recommendations are provided in Exh. WS-1 together with my recommendations for the residential goals, and are explained below.

Q. What annual energy DSM savings goals do you recommend to the Commission?

A. As I understand it, Florida law establishes that it is State policy to "[p]lay a leading role in developing and instituting energy management programs aimed at promoting energy conservation, energy security, and the reduction of greenhouse gas emissions." Fla. St. § 377.601(2)(b). In my opinion as an expert on utility resource planning, to do so Florida's electric utilities will need to be among the leading electric utilities in the nation in terms of savings from their energy efficiency and peak demand reduction programs. That will not happen, in my opinion, unless the Commission establishes savings goals for the utilities that match those achieved by the leading utilities in the nation. The "leading electric utilities in the country" run DSM programs that save the equivalent of on the order of 1.0 percent of electricity sales each year."[13] In fact, as explained by other NRDC-SACE witnesses, a number of the leading DSM program administrators consistently save in excess of 1.0% per year. The same reports indicate a

[13] *National Action Plan for Energy Efficiency (NAPEE)*, p. ES-4. This conclusion is also supported by the Western Governors' Association Clean and Diversified Energy Initiative in its *Energy Efficiency Task Force Report*, p. 55 (Jan. 2006), available at http://www.westgov.org/wga/initiatives/cdeac/Energy%20Efficiency-full.pdf.

consensus that the cost of saved energy for those leading DSM programs is on the order of $0.02-0.03/kWh (utility plus participant costs)..[14]

One logical conclusion is that the Commission should set savings goals of no less than 1.0% per year, and I recommend that the Commission set savings goals at that level for annual electric energy sales for the years 2010 through 2019. However, I recommend that the Commission do so on an interim basis for both the residential and commercial sectors. In my response to Issue 12, given below in this testimony, I explain what I mean by setting goals on an interim basis and how the Commission should go about establishing permanent goals. Below, I address ramp up issues and my recommended goals for utilities during ramp up years.

Q. Do you have a recommendation regarding winter and summer peak demand savings?

A. Yes, I do. The FEECA utilities have various demand response and load control initiatives in place or proposed. My recommendation with respect to winter and summer peak demand savings goals is to set the goals at the sum of (a) the peak demand savings impact for each season from the utility energy efficiency programs needed to deliver my recommended electric energy savings goal of 1% per year, plus (b) the additional peak demand savings impact for each season from each utility's demand response and load control initiatives in place or proposed (as approved by the Commission). Since the seasonal peak demand impacts delivered by the utility energy efficiency programs needed to deliver an electric energy savings goal of 1% per year will depend critically on the specific measures deployed, it will only be possible to determine the appropriate goals for

[14] *Id.*

peak demand savings after the Commission has a better idea of the peak demand savings impact of a 1% energy savings goal.

Q. Have your prepared specific numeric savings goals that you recommend to the Commission?

A. Yes. After taking into account the known errors in the utilities' analyses identified by myself, Mr. Mosenthal and Mr. Wilson, and taking into account correct application of the TRC test, it is my expert opinion that the actual achievable potential should be well in excess of 10% of retail sales. Accordingly, as I recommended in an earlier answer, the Commission should be confident that it may adopt an across the board interim goal of 1% per year for each utility and each category of savings with certain adjustments explained below. In Exh. WS-1, provide filled out numeric goal tables for each electric utility that prefiled proposed savings goals for itself in this proceeding.

The tables in Exh. WS-1 are formatted in the manner requested under Issues #8 and #9 in the Staff Issues List with one modification. Because I based my numeric goals on data from the FEECA utility *Ten Year Site Plans*, and because those plans do not disaggregate seasonal peak demands by customer class in the way that the Staff Issues List does, I was only able to provide aggregate seasonal peak demand savings goals.

Since FPUC does not file a *Ten Year Site Plan*, I was unable to develop specific numerical goals for that utility, although I do recommend the same 1% per year electric energy savings target apply to FPUC.

In addition, as explained in the immediately preceding answer, it is possible to give only illustrative goals for peak demand savings. Therefore, and purely for illustrative purposes, I have calculated the numerical peak demand savings goals from my electric

energy interim savings goals as if the peak demand savings were strictly proportional to the energy savings, i.e., 1% per year.

Q. Please explain how you prepared the recommended numeric goals set out in Exh. WS-1.

A. In absence of correct analysis from utilities, I recommended in an earlier answer that Commission adopt an across the board interim goal of 1% per year for each utility and each category of savings. The tables in Exh. WS-1 represent an annual savings goal of 1% of a given utility's forecasted energy, summer peak demand or winter peak demand, as the case may be, for the given customer category. Again, the record supports goals of at least 1%, but because of the errors in the utility analysis, I recommend that 1% be adopted as interim goals. I explain further what I mean by setting goals on an interim basis and how the Commission should go about establishing permanent goals in my response to Issue 12, given below in this testimony. Because the most recent *Ten Year Site Plans*, provide forecasts only through 2018, it was necessary to extrapolate goals for 2019. I adopted forecast values for 2019 electric energy sales and peak demands equal to the 2018 company forecasts plus a percentage increase over 2018 at the same rate as the increase from 2017 to 2018 in those forecasts.

Q. How do you recommend the Commission address ramp up issues in setting goals for utility energy efficiency?

A. Time is of the essence in this matter. Every day programs are not in place and fully ramped up, efficiency savings that would have lasted for years are lost. Further, there is not reason the FEECA utilities cannot quickly ramp up to aggressive implementation. Furthermore, the faster and more aggressively programs are scaled up,

the lower I would expect their cost of saved energy to be—a goal all stakeholders should share. Utilities new to DSM can ramp up programs quickly to substantial impacts. For example, in 2007, the third year of its DSM program, the Arizona Public Service Company achieved annual energy savings equivalent to 0.89% of retail electricity sales (ramping up from 0.09% in 2005, and 0.37% in 2006).[15]

Q. So, do you have recommendations for adjusting your 1% per year savings goals during ramp up?

A. Yes, I do. I have separate recommendations for the smaller FEECA utilities and for the larger ones. I consider OUC, FPUC and JEA to be smaller utilities for this purpose.

The larger utilities reported savings to EIA in 2007 of between 0.11% and 0.2% of retail sales. Taking into account that baseline, I recommend a three-year ramp up schedule for interim savings goals of 0.33% in year one, 0.66% in year two, and 1.00% in year three and thereafter.

Of the three smaller FEECA utilities, two reported savings of 0.10% or less in 2007. (OUC did not report.) Taking that and their size into account, I recommend a four-year ramp up schedule for interim savings goals of 0.25% in year one, 0.50% in year two, 0.75% in year three, and 1.00% in year four and thereafter.

These ramp up schedules are reflected in the illustrative numeric goals in my Exh. WS-1, except that, as mentioned above, I have not prepared a schedule for FPUC.

[15] Arizona Public Service Company's response to Western Resource Advocates First Set of Data Requests, Arizona Corporation Commission Docket No. E-01345A-08-0172, August 4, 2008.

Q. How do those recommendations relate to the utilities' prefiled studies and their claims about achievable potential?

A. Obviously, my recommended goals are larger than the utilities' recommended goals. After ramp up, my recommendations are 1% of annual sales, while the FEECA utilities recommended goals average less that one-tenth of that. My recommendation results in a cumulative 10-year savings on the order of 9% of retail sales. NRDC-SACE witness Wilson concludes that the technical potential for Florida might reasonably be estimated as 42%, nearly five times my recommendation. NRDC-SACE witness Mosenthal observes that a ratio of achievable potential to technical potential of about 60% is "fairly typical." Applying that ratio to a technical potential of 42% gives an estimate of achievable potential equal to about 25% of load, nearly triple my recommendation. As for the utilities' claims about achievable potential, FPL's estimate of achievable potential is under 1% of load, no more than a ninth of my recommendations.

While that may seem like a large difference, it is easily accounted for by the many errors in the analysis of achievable potential conducted by those utilities. Those errors are discussed elsewhere in my testimony and that of the other NRDC-SACE witnesses. Not the least of those errors was their use of the RIM test and the fallacious decision to arbitrarily exclude any measures or programs with a short participant payback If we compare my recommended goals to the results of the Itron technical potential studies, a different picture emerges. In any event, annual savings goals of 1% of energy sales or peak demand are entirely reasonable given past experience and fully justified under Florida's State policy

ISSUE 10: In addition to the MW and GWh goals established in Issues 7 and 8, should the Commission establish separate goals for demand-side renewable energy systems?

Q. Was the solar PV economic/achievable analysis was done correctly?

A. No. For this measure, I have prepared an illustrative cost-benefit analysis under the TRC and Participant tests using information from FEECA utility witnesses and other sources. The analysis was done for 2010 installation and 2015 installation. It showed that demand-side PV did not pass the TRC, but was close to passing the Participant Test in 2010 and passed it easily in 2015. I would note that if the Florida State incentives available for PV are counted as a reduction to the capital cost of PV units—an assumption that is not normally made in the TRC—the technology does pass the TRC. Due to time constraints, it was necessary to perform this analysis with highly preliminary "placeholder" inputs, especially for avoided costs. Even so, the finding that the Participant Test is passed with zero or a very small utility incentive, taken together with the emphasis recent Florida statute places on setting goals for demand-side PV, suggests that there are policy considerations that support special consideration for this emerging resource. Certainly, it would be beneficial for the Commission to require the FEECA utilities to undertake a fresh assessment of the market potential for demand-side PV. Alternatively, a small goal now to build infrastructure and public awareness for future full deployment could be deemed reasonable, given the language of Fl. Sta. 377.601(2)(h)(i), which says that State policy is to "Encourage the research, development, demonstration, and application of alternative energy resources, particularly renewable energy resources."

Q. What recommendations do the FEECA utilities offer in regard to separate goals for demand-side renewable energy systems?

A. In their testimony, each utility representative recommends that the Commission should not establish separate goals.

Q. And what do you recommend?

A. I recommend that the Commission set separate MW and GWh goals for demand-side renewables. These goals can be consistent with Florida's renewable energy resources, and ramp up over time as experience is gained and more technologies become cost effective.

Given the policy goals of FEECA, the Commission should do what it can (I'm not a lawyer) to make this a priority in this proceeding if for no other reason than the long term market transformation benefits that would flow from highlighting this demand-side renewable technology. A separate goal would ensure that the utilities and the Commission attend to this specific legislative policy goal and provide a forum for continuous improvement in that area.

<u>ISSUE 11</u>: In addition to the MW and GWh goals established in Issues 7 and 8, should the Commission establish additional goals for efficiency improvements in generation, transmission, and distribution?

Q. Do you recommend that the Commission establish savings goals for these categories?

A. Increasing generating plant efficiency and reducing T&D losses can be particularly valuable as all customers benefit directly. They are especially low risk

resource options in general because an improvement to an existing facility is typically less onerous and chancy to permit and requires less capital than building a new resource. Further, there would likely be shorter lead times and less planning risk.

However, I recommend that the Commission defer this issue briefly for later proceedings in this docket (or another one, such as the next *Ten Year Site Plan* review, if preferred) to allow time for the utilities to perform technical and economic potential studies for efficiency improvements at their existing power plants and in their existing T&D systems. I recommend that the Commission set a date certain by which the utilities will provide that information for review.

Ideally, each utility should plan and conduct a comprehensive study evaluating options for improving generator efficiency and transmission and distribution system efficiency. The studies should also identify any environmental regulations that might be triggered as a result of the efficiency improvements (e.g., New Source Review), estimate the cost of compliance with those regulations above and beyond the costs directly associated with the efficiency improvements, and the benefits to the public associated with those additional costs of compliance with environmental regulations.

Based on the findings of that study, it should then implement a program to bring its generators and T&D system to the level of efficiency that is optimal on a present value of life cycle societal cost basis within a reasonable period of time. These studies and action plans should be reviewed and updated at reasonable intervals and could form the basis for Commission goals in these areas. Finally, each utility should implement a program, as part of its IRP, to maintain generation and T&D efficiency improvements on

an ongoing basis. As many of the subject facilities would affect more than one utility, close cooperation among them should be required for these studies.

To give some sense of the range of options, I will list some of the T&D system efficiency measures that are likely to offer benefits as a result of circuit-by-circuit and system-as-a-whole potential study. At a minimum, evaluations should assess the economics and technical feasibility of the following measures:

- Strategic placement and control of reactive power devices;
- Distribution circuit reconfiguration;
- Installation of distribution automation to control reactive power, feeder configuration, phase balancing, and peak loads;
- Re-conducting lines to larger-sized conductors;
- Replacement of conventional silicon steel core transformers with high efficiency silicon steel transformers or amorphous metal core transformers;
- Conservation voltage regulation;
- Increasing distribution system voltage levels;
- Implementation of a distribution transformer load management (DTLM) program
- Implementation of T&D Equipment Selection and Utilization Standards based on life-cycle cost analysis to ensure that all transformer and capacitor selection and purchase decisions fully reflect the TRC of projected capacity and energy losses

over the equipment lifetime with due regard for expected loadings and duty cycles and a program to inventory transformers in use and on hand to match transformer loss characteristics with customer load factors, as well as an ongoing system to monitor and adjust transformer loading for optimal economic benefit.

ISSUE 11 (Second mention): In addition to the MW and GWh goals established in Issues 7 and 8, should the Commission establish separate goals for residential and commercial/industrial customer participation in utility energy audit programs for the period 2010-2019?

Q. What is your recommendation regarding this issue?

A. This question suggests the Commission might consider adoption of certain goals that address what would typically be considered an output measurement, not a measurement of results. In the field of program evaluation, several kinds of program evaluation are identified. These types of evaluation include process, input (resource usage), output (service delivery), result (outcome), and cost-effectiveness evaluation. Each has its place in a sound evaluation process. Each has an important place in sound monitoring, verification and evaluation (MV&E) of utility efficiency programs; for example, process evaluation can be especially useful during program startup or after program modification, both to ensure that hard-to-reach customer groups are being recruited and served in ways that work for them and to identify promptly any practices and procedures that are not working optimally so that they may be corrected quickly.

Normally, I recommend that regulators set binding goals mainly for results, with process, output and other types of evaluation provided for management and regulatory review. However, Fla. St. § 366.82(11) specifically calls (1) for the Commission to

require that utilities deliver energy audits and (2) for utilities to report "actual results" after each six-month period. That statute also requires consideration of "the difference, if any, between actual and projected results . . . be taken into account in succeeding periods." To me, as an expert in utility resource planning, this language implies the prior existence of goals for this output measurement (required audits). Given this, I recommend that the Commission set goals for delivery of audits. Since the technologies and human resources required for a useful audit of dwellings differs significantly from those required for auditing commercial facilities, especially large ones, I do recommend that the Commission set goals separately for residential and commercial energy audits.

I also recommend that the Commission bear in mind that for utility energy audits to provide any useful benefit to ratepayers, those audits must result in actual measures being implemented and savings delivered. Going through the motions of doing audits is not enough. Further, the work of recruiting a customer, performing an energy audit for that customer, and providing the customer with recommendations and the education and explanations needed to understand and act on those recommendations is a substantial investment. So, utility energy audits must result in useful recommendations that customers can and will implement. That, in turn, requires that a comprehensive suite of measures, programs and customer incentives that are attractive to customers back up the audits. In addition, an energy audit can maximize benefits to ratepayers, the utility, and society only if it is designed and implemented to be comprehensive, by which I mean that the audit and the supporting programs ensure that all cost-effective measures are identified, , requires follow through from audits must maximize measures are identified, offered and encouraged, without any arbitrary restrictions. One example of such an

arbitrary restriction is a limitation on the number of instances of a given measure (e.g., CFLs) may be offered. Another is loading the field screening of measures with allocations of A&G, marketing and audit expenses that are already sunk costs.

For those reasons, and since, as I understand it, utility energy audits are now required by Florida law, I recommend that the Commission go beyond simply setting goals for the two customer groups and direct utilities to (1) ensure that audits are designed maximize acceptance of audits and recommendations by each customer group, including hard-to-reach customers, (2) provide audit customers with recommendations and the education and explanations that enable them to understand and act on those recommendation, support those audits with a comprehensive suite of measures, programs and customer incentives that are attractive to customers, (4) design and implement audits in a manner that ensures that all cost-effective measures are identified, offered and encouraged, (4) perform program design and field screening without any arbitrary restrictions on the number and type of measures offered, and (5) perform program design and field screening in a manner that does not include in the cost of incremental measures any allocation of A&G, marketing and audit expenses, or other costs that are sunk at the time of delivering the audit recommendations to the customer.

Q. This issue, as posed, does not request recommendations for specific audit delivery goals. Do you have any recommendations for how such goals should be set?

A. Setting such goals is a difficult task for a regulator, but it should be addressed in a thoughtful manner. I recommend that the Commission set goals for the pace of audit delivery that are sufficient to fully utilize any available efficiency program resources—

that is, to keep the "pipeline full" for efficiency service delivery programs. As programs are fielded and resources allocated to them, the pace of audit delivery can be adjusted to suit those programs and resources.

ISSUE 12: Should this docket be closed?

Q. Do you have any advice on this question?

A. I understand this as mainly a legal question, but I do recommend that the Commission keep in mind from the testimony provided by NRDC and SACE certain practical implications that would follow from making that decision.

The bottom line conclusion from the testimony of NRDC's and SACE'S witnesses is that the studies of efficiency and customer-side renewables potential provided by the utilities greatly underestimate the achievable potential. Based on our review of these studies, it is clear that it is possible to achieve at least 1% annual energy efficiency gains after a brief ramp up period. This conclusion is further supported by my experience with other potential studies, none of which indicated less than 10% achievable potential for energy efficiency over ten years. However, because of the lack of transparency in the economic and achievable potential study, it is possible that more aggressive goals could be supported.

Accordingly, the studies are an inadequate basis to set final ten-year goals. These erroneous studies put the Commission in a difficult position. As I understand them, Florida statutes require the Commission to set savings goals for the utilities' energy efficiency and customer-side renewable programs, but the utilities have given the

Commission such inadequate information and process that they cannot form a basis for further action. The phrase "bricks without straw" comes to mind.

Of course, as I understand it, the Commission cannot avoid setting goals this year, so I recommend that the Commission set interim goals of 1% per year for utility energy efficiency savings, as indicated above in response to Staff Issues #8 and #9 (modified for the brief ramp up period I recommend). I also recommend one type of demand-side renewable generation goal in response to Staff Issue #10.

However, I recommend that the Commission adopt those as interim goals and keep this proceeding open (or initiate a new one) for the following purposes: (1) to require the utilities to perform a review of the technical potential study to address issues identified in this proceeding and a report providing a revised technical potential study; (2) to require the utilities to conduct a full, properly documented and fully transparent revisiting of the economic and achievable potential studies to correct the errors and omissions described by NRDC's and SACE's witnesses; (3) to receive and provide an opportunity for review those new studies, with Commission funding for independent expert review of the studies; and (4) to set refined permanent goals for energy efficiency savings and demand-side renewable generation.

I am not an expert in Florida's administrative procedures or its public participation regulations, but I would encourage the Commission to direct these studies and reviews in a manner that provides other stakeholders (not simply my clients) a role in commenting on the study as it proceeds. For example, a number of states use a special master, hearing officer, or other state-appointed official to lead the process of developing

the final set of recommendations, rather than relying on the utilities to propose and putting the burden of rebuttal on third parties without access to ratepayer-funded research and litigation resources.

I understand that under my proposed approach, there might be a situation where it would not be appropriate to hold a utility fully accountable for meeting the interim goals due to differences between them and the final goals, but stress that a utility should so be excused *if and only if* the Commission's final goals for it are lower than its interim goals *and* the utility's achievements are consistent with those final goals.

Other Items for Consideration

Q. On the Staff Issues List, Issues #8 and #9 requested proposed goals for both energy consumption and peak load by season. Are those the only goals called for in the FEECA? If not what other goals should the Commission consider adopting?

A. The subdivision of FEECA (Fla. St. § 366.82(2)) that directs the Commission to adopt goals for energy efficiency reads as follows:

> (2) The commission shall adopt appropriate goals for increasing the efficiency of energy consumption and increasing the development of demand-side renewable energy systems, specifically including goals designed to increase the conservation of expensive resources, such as petroleum fuels, to reduce and control the growth rates of electric consumption, to reduce the growth rates of weather-sensitive peak demand, and to encourage development of demand-side renewable energy resources. The commission may allow efficiency investments across generation, transmission, and distribution as well as efficiencies within the user base.

It is noteworthy that the statute calls for goals designed "reduce and control the growth rates of electric consumption" and "to reduce the growth rates of weather-sensitive peak demand." Clearly, the former calls for setting goals for energy savings measured in terms of GWh per year of consumption. The latter charge requires a bit more thought. It calls for reduction in the growth rates of weather-sensitive peak demand. On its face this means goals for the reduction of the demand attributable to certain specific end uses, such as air conditioning, space heating, swimming pool heating, commercial space conditioning, and certain other commercial end uses, whose usage or performance depend on ambient temperature, humidity, wind speed and so on.[16]

The Commission may wish to set specific goals for reducing the peak load from those weather sensitive end uses or it may prefer to set overall peak demand goals. If the Commission wishes do so *and* adopts my recommendation to hold subsequent proceedings in this docket (see response to Issue 12 below in this testimony), I recommend that it defer setting goals for weather sensitive end uses to that proceeding and direct utilities to identify and add to their revised studies any additional end uses and measures that exist for such end uses.

Q. So, with respect to energy goals and peak demand goals, are both equally important? And how should the Commission address differing levels of achievement by utilities across those goals?

[16] While I will not go into detail here, it is worth noting that certain aspects of supply-side electricity consumption have a weather-sensitive peak demand. Some examples are in the T&D sector, such as the energy consumed by the fans that cool large transformer and the increase in resistance of wires as the ambient temperature rises. In the generation sector, some parasitic loads at generating stations increase with ambient air temperature, and the overall thermal cycle efficiency of many types of non-renewable generators declines with higher ambient air or water temperatures.

A. Both kinds of goal have important impacts on the public interest, but I recommend the Commission pay the most attention to utility performance against the Commission's energy goals if there is ever a tension between the two kinds of performance. By statute, reducing CO_2 emissions is a policy goal of the State of Florida. For a given fuel mix, CO_2 emissions from the electric industry are primarily driven by the quantity of electric energy produced. Therefore, mitigation of GHG emissions is best addressed through energy goals, rather than demand goals.

Q. You and other NRDC-SACE witness have recommended the Commission require use of the TRC test for screening DSM resources. Do you recommend any adjustments to that test?

A. Yes, I recommend three adjustments to the TRC test.

The first has to do with the inclusion of values for carbon costs in the avoided cost of energy and capacity to be used in design, field screening and evaluation of utility energy efficiency programs and in goal setting. I have recommended specific numeric values for that adjustment elsewhere in this testimony.

Second, I recommend an adder of 10% to the avoided cost of transmission and distribution, reserves and ancillary services within the TRC calculation to represent the non-energy benefits of avoiding those requirements, such as land use impacts. I recommend that the Commission direct that these adjustments be applied in addition to the other quantifiable benefits from DSM, and that they be used when calculating TRC values for specific DSM measures and programs in both program design and field screening, as well as for goal setting, for program evaluation and for evaluating the cost-effectiveness of the overall portfolio of a utility's DSM programs. This is comparable to

the way external costs of supply-side resources are recognized, for example, in Vermont.[17]

Third, I recommend that the costs of DSM measures and programs be reduced by 10% prior to being used in the TRC calculation to reflect their lower risk compared to supply-side alternatives. In parallel to my first adjustment, I recommend that the Commission direct that this adjustment be applied as a reduction to the sum of the costs of DSM, and that it be used when calculating TRC values for specific DSM measures and programs in both program design and field screening, as well as for goal setting, for program evaluation and for evaluating the cost-effectiveness of the overall portfolio of a utility's DSM programs.

Q. What is the basis for your recommendation of a 10% reduction to DSM program and measure costs to represent non-energy benefits of DSM in measure and program screening and evaluation?

A. I have discussed the risk avoidance benefits and hedging benefits of utility energy efficiency programs relative to supply-side resources elsewhere in this testimony. Here, I will only discuss one additional perspective on this matter.

DSM programs may not always be 100% successful, but compared to supply-side resources they offer immense risk reduction benefits for ratepayers and utility shareholders, alike. For example, energy efficiency can help reduce the risks associated with fossil fuels and their inherently unstable price and supply characteristics and avoid

[17] This percentage adder approach to factoring environmental costs into resource evaluation was widely used in the 1990s and usually applied equally to avoided costs of generation and T&D. *See*, for example, Vt. Public Service Board Final Order in Docket 5270, 1990; S. Stoft, J. Eto and S. Kito, *DSM Shareholder Incentives: Current Designs and Economic Theory*, Lawrence Berkely Laboratories, 1995. More recently in the western states, the emphasis for generation externalities has been on pricing carbon emissions, but the percentage adder approach remains valid for non-generation avoided costs that impose external costs on society in areas of land use, habitat intrusion, scenic and tourism effect, and so on.

the costs of unanticipated increases in future fuel prices. As discussed by NRDC-SACE witness Wilson in his prefiled testimony, FPL has claimed in its nuclear plant need determination that fuel diversity is desirable, particularly when it reduces rate sensitivity to fuel costs. Generally, energy efficiency has zero sensitivity to fuel costs making it superior to nuclear generation in that regard.

Energy efficiency can also reduce the risks associated with environmental impacts, by reducing a utility's environmental impacts and helping utilities and their ratepayers avoid the hard to predict costs of complying with potential future environmental regulations, such as CO_2 regulation. Energy efficiency can improve the overall reliability of the electricity system by reducing peak demand at those times when reliability is most at risk and by slowing the rate of growth of electricity peak and energy demands and giving utilities more time and flexibility to respond to changing market conditions, while moderating the "boom-and-bust" effect of competitive market forces on generation supply.[18] In addition, energy efficiency can be generally less risky than supply-side alternatives because DSM programs are modular and easily adjustable as circumstances change, plus each measure installed delivers benefits beginning immediately, unlike power plants that deliver no benefits at all unless and until they are completely built; uncertainties in load forecasts, capital costs of new generation, permitting delays and so on are types of planning risk that burden supply-side options but not DSM resources.

[18] Steven Nadel, Fred Gordon and Chris Neme, *Using Targeted Energy Efficiency Programs to Reduce Peak Electrical Demand and Address Electric System Reliability Problems*: ACEEE 2000, http://www.aceee.org/pubs/u008.htm; Regulatory Assistance Project, *Efficient Reliability: The Critical Role of Demand-Side Resources in Power Systems and Markets*, prepared for the National Association of Regulatory Utility Commissioners, June 2001.

I consider a 10% downward adjustment to DSM costs a reasonable proxy for the cost of those risks.[19] Ten percent is a commonly use contingency reserve for major construction projects and, so, is a reasonable proxy for at least one of the many risks borne by supply-side resources and not by DSM programs. (Some generation-related projects, such as nuclear decommissioning projects) are planned with contingency factors of 25% or more.)

Q. You have advocated here for several Commission actions, but then recommended that those actions be deferred to a later proceeding in this docket or another. Why is that?

A. Time is of the essence; prompt action is required of all involved—utilities, interveners, Commission—because of looming new generation investments.[20] However, the current recession gives Florida some chance of avoiding the creation of lost opportunities by having new construction/remodeling programs out the door by winter 09. Even though Florida is a leader in the area of building codes utility electric efficiency

[19] There are various ways of treating these risk reduction benefits in resource selection. To minimize the regulatory burden, I have proposed the simplest of those: application of a percentage discount to the cost of DSM. That is the approach utilized in Vermont since 1990. Vt. PSB Final Order in Docket 5270. More complicated methods for addressing this issue are widely used by firms of all kinds in their internal planning. Roschelle, A., Steinhurst, W., Peterson, P., & Biewald, B. (2004). *Long Term Power Contracts: The Art of the Deal*. Public Utilities Fortnightly (August), 56-74. One of those methods is the use of risk-adjusted discount rates. *See,* for example, Mark Bolinger and Ryan Wiser, *Balancing Cost and Risk: The Treatment of Renewable Energy in Western Utility Resource Plans*, LBNL-58450, available at http://eetd.lbl.gov/EA/EMP. ("Increasingly, analysts are calling attention to the benefits of renewable energy as a hedge against electricity sector risks. In particular, renewable energy may be viewed as a valuable contributor to a generation portfolio due to its ability to mitigate natural gas price risk and the risk of future environmental regulations, most notably the risk of future carbon regulation (see, e.g., Wiser et al. 2005; Bolinger et al. 2005; Wiser et al. 2004; Awerbuch 1993, 2003; Hoff 1997; Cavanagh et al. 1993).") The complex Monte Carlo analyses that form the basis of the Northwest Power and Conservation Council discussed elsewhere in this testimony are another approach to the same problem. These methods have much to recommend them in terms of objectivity and transparency and have been used in Washington, Nevada, California, Idaho and other jurisdictions, but their adoption would require the Commission to first undertake a lengthy proceeding to determine the risk tolerance of ratepayers, which is one reason I have recommended a streamlined approach.

[20] *See*, for example, FPL 2009-2018 *Ten-Year Power Plan Site Plan*, pp. 7 ff.

programs can procure DSM resources well above the levels of efficiency in building codes.

Q. Do you have any other recommendations in regard to energy efficiency programs?

A. Yes, I have two. The first highlights the importance of avoiding the creation of lost opportunities in the course of delivering utility energy efficiency programs and explains some of the standards that the Commission should impose to prevent that outcome. The second relates to provision of energy efficiency services to certain hard-to-reach customer groups and explains some of the standards that the Commission should impose to ensure equitable treatment of those customers and to avoid losing out on the efficiency savings available in their homes and businesses.

Q. Please explain your first additional recommendation.

A. Utility energy efficiency programs, as for any other utility expenditure or investment, should be prudently managed and deliver least cost service. Two important policies are necessary to ensure that outcome.

First, utility energy efficiency programs should be designed and implemented to minimize "lost opportunities." Lost opportunities occur when efficiency measures are not installed when it is most cost-effective to do so (e.g., the construction of a new building or facility, building renovations, and the purchase of new appliances or equipment).

Second, programs should be designed and implemented to minimize "cream skimming." Cream skimming occurs when only the most cost-effective efficiency measures are installed, even though additional, higher-cost measures would be cost

effective. Cream skimming can lead to lost opportunities, because revisiting a customer to install the remaining measures may involve prohibitive transaction costs.

While this is not a program design proceeding, I bring this issue to the Commission's attention because of one of the decision rules adopted by FEECA utilities—their omission of measures with participant paybacks of less than two years. The two-year payback criterion for screening measures has the potential to create lost opportunities. Once the overhead has been spent to enroll a customer in an audit or custom measure program or otherwise, deliberately omitting any cost effective measure prevents least cost resource acquisition and is, therefore, imprudent management, as well as contrary to Florida's least cost service policy. Adoption by the utilities of such an arbitrary and self-defeating policy suggests to me that the Commission would be wise to take the precaution of explicitly requiring that utility energy efficiency programs be designed and delivered in a manner that prevents cream skimming or the creation of lost opportunities. I also recommend that the Commission establish goals that are based on potential studies not tainted with such errors and require that utility energy efficiency programs (1) adhere to comprehensive approaches that improve energy efficiency of entire buildings or industrial processes, rather then just address single measures or technologies, and (2) include a full menu of services, including incentives, marketing, training, technical assistance, and education on a number of end use applications (such as lighting, appliances, HVAC systems, and improvements to the building envelope)..

Q. Please explain your second additional recommendation.

A. Equity demands proper treatment of hard-to-reach customers, including those on limited incomes, small businesses, and others. Specifically, the Commission should

require that utility energy efficiency programs (or additional, special programs) be designed such customers be designed and implemented so as to ensure that such customers' needs are met in ways the work for them, not the average customer. Comments in the testimony of FEECA utilities in this proceeding indicate a lack of sensitivity to this requirement and lead me to spell out in some detail here the policy on hard to reach customers that I recommend the Commission adopt and require utilities to follow in their energy efficiency programs. The Commission should also establish goals that are based on potential studies not tainted with such errors.

Q. What do you mean by "hard-to-reach" customers?

A. By hard-to-reach customers I mean:

(1) Residential electricity users who rent their residences from persons other than kin (defined in a manner appropriate to Florida law and society), trusts operated by and for the benefit of the users, or the users' legal guardians,

(2) Commercial electricity users who rent their business property from persons other than the users' owners, parent companies, subsidiaries of their parent companies, their own subsidiaries, or trusts operated by and for the benefit of the same;

(3) Residential or commercial electricity users who traditionally fail to engage in energy efficiency or demand response programs because of one or more severe barriers beyond those experienced by average residential or commercial customers in a utility's service area.

By "barrier," I mean any physical or non-physical necessity, obligation, condition, constraint, or requisite that obstructs or impedes electricity user participation in energy efficiency or demand response programs. Barriers may include but are not limited to

language, physical or mental disability, educational attainment, utility meter type, economic status, property status, or geography.

Q. Policy do you recommend to the Commission in regard to utility energy efficiency programs for hard-to-reach customers?

A. I recommend that the Commission policy be that utilities are required to address programs for limited-income customers and hard-to-reach customers so as to assure proportionate energy efficiency programs are deployed in these customer groups despite higher barriers to energy efficiency investments. The Commission may wish to allow programs targeted to low-income or hard-to-reach customers to meet lower threshold cost-effectiveness results than other programs or be enhanced in other ways to ensure that those customers are not left out.

Q. Please summarize the key conclusions in your testimony.

A. Certainly. The FEECA utilities' analysis of technical and achievable DSM potential is woefully inadequate and fails to comply with Florida statutes as an expert working in the field of utility resource planning would understand them. The Commission should reject the FEECA utilities' proposed goals and adopt the interim percentage savings I recommend in this testimony. In view of the many flaws in those utility analyses, the Commission should undertake a more reasoned and consistent potential study and economic analysis across the jurisdictional utilities before setting any final goals. The Commission should ensure that the statutory change in cost-benefit test definitions enacted recently is adhered to by the utilities. The Commission should act in its goal setting and oversight of utility energy efficiency programs and expenditures with

a clear understanding that the roles of demand-side renewable energy and customer incentives in the goals require discreet and specific analysis.

Among the bases for those conclusions and recommendations are the demonstrated underestimate of the technical potential by at least 8%, illogical and totally improper use of the Participant Cost Test, utility reliance on the RIM test in the face of clear direction from the Legislature to the contrary, and the imposition of arbitrary and pointless restrictions on measures with less than a 2 year payback. For the Commission to take final action on DSM goal setting on such a flimsy foundation would be a huge and possibly irreparable disservice to the people of Florida.

Q. Does that conclude your testimony at this time?

A. Yes.

BY MR. JACOBS:

Q. Dr. Steinhurst, do you have a summary of your testimony?

A. Yes, I do.

Q. Would you offer that now?

A. Thank you for the opportunity to appear before you here today. I began my review of this case from the perspective of 23 years as the lead technical witness for a state consumer advocate, followed by six more years testifying for consumer advocates around North America and for private organizations such as AARP.

Unfortunately all we had to work from was a study of achievable potential that relied on assumptions well outside the bounds of standard utility practice. Based on problems with the FEECA witness prefiled goals, including problems identified by Witnesses Wilson and Mosenthal, I concluded it was not practical to try to adjust or correct the utility energy efficiency goal estimates and that I needed to start from scratch.

I will explain how I developed my recommended goals and how they benefit Floridians and ratepayers as a whole.

I developed a set of goals consistent with, even if not derived from, the Itron technical potential study. I relied on two pieces of information to do

that. First, the Itron technical potential study and, second, my knowledge of what utilities, both inside and outside Florida and both those new to DSM and those experienced in DSM, have been able to deliver.

Based on my knowledge of what utilities have routinely been able to deliver, I concluded that 1 percent of retail sales per year was a reasonable lower bound on energy efficiency goals for a state whose Legislature has declared, quote, that it is critical to utilize the most efficient and cost-effective demand-side conservation systems to protect the health, prosperity and general welfare of the state and its citizens, unquote.

I used that lower bound to calculate specific numeric goals for each utility, using the best information available and allowing for a reasonable ramp-up period. I compared those savings goals to the adjusted Itron technical potential and concluded that my numerical goals were reasonable.

In evaluating proposed goals, I considered benefits to Floridians to be paramount, and will explain why my recommended goals deliver the greatest benefits to them.

To begin with, the TRC Test is the only choice that ensures benefits to all Floridians and to

ratepayers as a whole and ensures that customers as a whole are better off, as called for by *Florida Statute.*

With regard to the benefits of my recommended goals for ratepayers as a whole, I would first note that the program participants, especially low income and elderly customers, will see real savings immediately. Nonparticipants will also see real savings soon and for years to come, possibly even immediately. Those who do not participate in formal programs will need to carry out only minimal self-help savings to net out ahead of the game. Systemwide benefits for all customers will kick in gradually whenever there is an expensive power line upgrade or new generator that can be avoided.

EE -- energy efficiency programs far exceed supply-side expenses in creating jobs as well and increasing the size of the state economy as a whole, floating nonparticipants' boats as well.

I'd like to note another benefit to ratepayers as a whole. Energy efficiency delivers serious bill reductions to at-risk customers, by which I mean limited income households, the elderly and the disabled, as well as to small businesses. Those customers see more affordable heating and cooling of residences and so more disposable income for food and medicine. This support for well-being in turn saves the state and all taxpayers

money by reducing the burden on public assistance and healthcare systems. Energy efficiency also acts as a hedge against volatile market prices for power and generating fuels. Thank you.

MR. JACOBS: Madam Chair, we tender Dr. Steinhurst for cross-examination.

COMMISSIONER EDGAR: Thank you.

Mr. Burnett?

CROSS EXAMINATION

BY MR. BURNETT:

Q. Dr. Steinhurst, good afternoon. Do you happen to have a copy of your deposition exhibit transcript?

A. I do.

Q. Okay. And you do have your prefiled testimony?

A. I do.

Q. Thank you. Dr. Steinhurst, I would commend to you that if your recollection of what you said in those two forums is vivid, we will breeze through this.

Dr. Steinhurst, do you agree with me that in discussing your testimony, you used several descriptive terms and phrases to describe it; correct?

A. Perhaps. Maybe you could point me to them.

Q. Sure. For example, in several instances in your testimony you refer to some of your opining as

hypothetical, do you not?

A. I don't recall one way or the other. That would certainly not be unusual for policy testimony.

Q. Sure. Well, specifically on Page 6, Line 19, you ask this Commission to consider a hypothetical energy efficiency matter, do you not?

A. Yes, I do.

Q. And on Page 7, Line 4, you ask this Commission to consider two more hypothetical measures, do you not?

A. Yes. I, excuse me, yes, I do. Those are offered for the purpose of illustrating the technical terms that I employed.

Q. Yes, sir. And on Page 10, Line 3 of your testimony, you say that your recommendation for Florida's, Florida economy's first line of defense is, quote, hypothetical at this point, do you not?

A. I disagree with that interpretation.

Q. Well, let me actually read what you say. You say on Page 10, "Energy efficiency measures and programs would then become the Florida economy's first line of defense. This may be a hypothetical at this point, but I recommend that the Commission consider such benefits," and you go on there. Did I read that correctly?

A. You did. But I would need to clarify the reference for the word "this" on Line 3. The word

"this" in that sentence refers not to energy efficiency measures or programs or the fact that they would be Florida economy's first line of defense, but to the situation described on Page 9, Lines 17 through 20, or 17 through 22, I guess, and then onto the first two lines of Page 10.

Q. Thank you, Dr. Steinhurst. And if we turn to Page 5 of your prefiled testimony, a reader can see examples of other instances where you use hypothetical words like air quality benefits, quote, "are likely," at Line 1. At 5 you say, quote, "there may be situations." Line 10 you say, "there is likely to exist." Line 12 you say, "they are projected to be substantial." And then Line 19 you say, "may create." Would you agree with me?

A. I would not agree that the word "likely" and the other words you referenced constitute hypotheticals. They are expressions of my expert opinion with regard to the consequences of a particular hypothetical condition.

Q. And in fact, Dr. Steinhurst, you have qualified some of your testimony as, quote, "highly preliminary placeholder inputs that are subject to later refinement," have you not?

A. Yes. In the context of recommending that the Commission adopt interim goals, direct the utilities to

conduct improved analyses of DSM potential and file revised permanent goals.

Q. And, Dr. Steinhurst, in fact when I asked you why you picked 1 percent for your proposed goal that you've told the Commission about in your summary, you told me you picked it because it was a nice round number, didn't you?

A. I did. And I explained later in my deposition that what I meant by that was that I selected an easy to understand value at the lower bound of the range of reasonableness I had identified.

Q. Dr. Steinhurst, now changing topics a little bit, in your summary that you just gave the Commission you talked about some of the things you did do. I'd like to talk to you about some of the things that we agree that you did not do. For example, you did not perform any analysis specific to Progress Energy Florida, did you?

A. Not that I recall.

Q. And you did not perform any analysis for any other of the FEECA utilities beyond reading some portions of their prefiled testimony in this case, did you?

A. Not individually.

Q. And you did not read all of Mr. Masiello's

testimony, did you?

A. I read the portion that was relevant to my testimony.

Q. And you'd give me that same answer with regard to the other FEECA utilities, would you not?

A. Yes, I would.

Q. Nor did you read all of Itron's testimony and exhibits in this case, did you?

A. Same answers.

Q. Nor were you involved with participating in or providing advice to the Collaborative that was formed for the purposes of this docket; correct?

A. I was retained approximately June 4th and am not aware that there were any Collaborative activities after that date. So I think the answer is yes.

Q. Yes, sir. And prior to filing your testimony in this case, you did not read any of the *Florida Administrative Code* to see if there were any rules that may be applicable to this goal setting docket, did you?

A. Can you show me where in my deposition I said that?

Q. Yes, sir. Page 7, Line 16 I say: "Okay. And have you, prior to filing your testimony in this case have you reviewed any of the *Florida Administrative Code* rules?"

Your answer at Line 19, "No."

A. I believe that was -- yes, that was correct at that time.

Q. And prior to filing your testimony in this case, you did not analyze what the dollar per kilowatt hour impact on monthly residential electric bills would be if the PSC accepts your proposal, did you?

A. No.

Q. And in fact you did not do any other sort of quantitative analysis on rate impacts to the FEECA utilities if your proposal is accepted, did you?

A. Not at that time.

Q. And prior to filing your testimony you also did not do anything to determine whether there, whether there were any legal restrictions on utilities using certain kinds of units in their avoided cost calculations for DSM cost-effectiveness, did you?

A. Certain kinds of what?

Q. Costs. Certain kinds of avoided -- using certain kinds of avoided cost calculations for DSM cost-effectiveness, did you?

A. I'm not clear on what you refer to by avoided cost calculations.

Q. Hang on one second.

Page 36 of your deposition, I asked you, "Did

you do any inquiries before filing your testimony as to whether this" -- and what I mean by "this" is what is reflected there in Lines 3 to 5 on Page 8 of your testimony -- "would be permissible under Florida law?" That's where you're talking about avoided cost calculations should be used against nuclear units.

And then on Page 37 you finally tell me, on Lines 1 to 2, "But the specific answer to your question is, no, I did not." Did I read that correctly?

MR. JACOBS: Madam Chair, as we did then, we would interpose an objection that this calls for Dr. Steinhurst to give a legal opinion. And we believe that his, his opinions in this docket are not based on his legal opinion.

COMMISSIONER EDGAR: Mr. Burnett?

MR. BURNETT: Yes, ma'am. I only asked him did he do anything to determine that, not to give any legal opinion. But in the interest of time, I'll be happy to move on.

BY MR. BURNETT:

Q. Dr. Steinhurst, you have not performed any specific analysis on what supply-side resources could be avoided or deferred by DSM in Florida, have you?

A. That is not correct.

Q. Okay. Well, if you would turn to Page 38 of

your testimony, of your deposition where I asked you, "Have you performed any specific analysis on what supply-side resources could be avoided or deferred in Florida?" Your answer at Line 8, "No."

Did I read that correctly?

A. Yes, you did.

Q. And at least at the time of your deposition you did not know what the Commission's target reserve margin for the FEECA utilities is, did you?

A. No.

Q. And although you claim that DSM programs have the potential to create what you call green jobs in Florida, you have not prepared any studies on what green jobs may be available in the future for Florida, have you?

A. Not a study, no.

Q. And while you talk about the issue of energy audits in your testimony, you have not conducted any specific study or analysis of what the FEECA utilities are currently doing with respect to energy audits, have you?

A. No.

Q. And while you discuss the issue of DSM programs reaching what you call hard to reach and low income customers, you have not offered up any specific

programs that may work to reach those customers in Florida, have you?

A. No. I express the policy position, or rather a policy recommendation.

Q. And, Dr. Steinhurst, while you take the position that on a national basis there are numerous types of DSM programs, some good and some bad, as you say, you have not endeavored to review those programs and delineate which good programs would conceptually work in Florida, have you?

A. Since this is a goal setting proceeding, no, I have not.

Q. Nor have you performed any detailed DSM program design work for Florida utilities, have you?

A. Same answer.

Q. And while you claim in your testimony that DSM programs can be used to hedge against fuel costs, you have not performed any studies or analysis that addresses this issue as it relates to Florida, have you?

A. I've conducted studies and analysis that address this issue in general, and I believe that those studies would be applicable to Florida, all things being equal.

Q. Well, thank you. And, again, my question was you've not done that as it relates specifically to

Florida, have you?

A. In my opinion, studies of general applicability do apply to Florida. If your question is have I conducted a study that applies only to Florida, the answer is no.

Q. And, similarly, while you allege in your testimony that DSM programs can help the environment, increase people's well-being and give people more disposable income, you have not performed any studies or analysis as to whether increasing DSM in Florida would actually lead to any of those benefits, have you?

A. Again, I've performed many studies that demonstrate those conclusions as a general matter. I have not performed studies that do so specifically with regard to Florida, but I have assisted colleagues with studies of that nature that were specific to Florida.

Q. Dr. Steinhurst, changing topics again, you claim in this case that you performed something you call a, quote, "meta analysis review of resource planning efforts broadly." Correct?

A. Yes.

Q. And this --

A. This, I use that term as a general characterization of the approach I took to developing the 1 percent savings target.

Q. Correct, Dr. Steinhurst. And this meta analysis review consisted of you taking the Itron technical potential study and reading it in conjunction with Witness Wilson's adjustments to that study and Witness Mosenthal's criticism of that study and then applying your experience to that information; correct?

A. In general terms. The details were not exactly that way.

Q. Well --

A. Or rather there are additional details beyond what you've said.

Q. But as you say in your deposition when you gave that exact same answer, you said so that is the process you asked about in general overview terms; correct?

A. Yes. I believe that was a preliminary question and answer.

Q. Okay. Well, you of course, Dr. Steinhurst, will have to logically agree with me that if you relied on any of Witness Wilson's adjustments to the Itron technical potential study without making any modifications to those as part of your meta analysis and it turns out that Witness Wilson's adjustments were incorrect, your use of his adjustments would necessarily be correct also, wouldn't they?

MR. JACOBS: Madam Chair, I object, multiple, but I think the primary one is it's a compound question, and I think it may have been asked and answered.

COMMISSIONER EDGAR: Break it down, Mr. Burnett.

MR. BURNETT: I'll move along, Madam Chair.

BY MR. BURNETT:

Q. Dr. Steinhurst, you also referenced your, you called it, I believe, 28 years of utility resource planning activities that you used in your meta analysis as well as something you relied on; correct?

A. Yes.

Q. And as I often ask before this Commission, your 28 years of experience isn't something that I could download from your brain on a CD and put it up on a screen and look at it for accuracy, is it?

A. What was the question?

Q. Never mind, sir. We'll get, we'll see if we can get closer to lunch.

Now turning to your prefiled testimony again, on Page 9, roughly to all the way, all the way to about Page 13, you provide several opinions on what you call shortcomings in the way the FEECA utilities handled other benefits of DSM or externalities in establishing the, establishing the benefits of energy efficiency;

correct?

A. Yes.

Q. Yet with respect to the alleged shortcomings you discuss in this section of your testimony, you have not performed any specific analysis or studies that are specific to Florida to support your allegations, have you?

A. I will give you the same answer as I did earlier to similar questions.

Q. That would be a correct?

A. The answer I would give is that I have conducted studies of general applicability with regard to those issues but not with regard to Florida specifically, except that I have assisted colleagues on studies that were specific to Florida.

Q. Well, and, and on Page 14 of your prefiled testimony, going all the way over to the top of Page 19, you provide a discussion there on what you call other system benefits to energy efficiency that the FEECA utilities did not allegedly consider in their analysis. But, again, you did not perform any quantitative analysis that was Florida-specific to support your assertions on these pages, did you?

A. With the same qualifications that I used in my immediately preceding answer, correct.

Q. And in fact, Dr. Steinhurst, you told me in your deposition that, that much of your assertions on these pages as they relate specifically to Florida are based on your observations to Florida as a visitor and your general knowledge about the state, didn't you?

A. I would not deny having factored in my personal observations of end use technologies in various parts of the state that I have visited. I relied primarily on my knowledge of the nature of Florida's industry and economy and demographics and other hard facts about the state.

Q. Moving on, Dr. Steinhurst, to a new topic, I think it's established here you're not a lawyer, and I'm not asking you for any legal opinions and I don't want you to give me any. But in your nonlegal opinion as an expert testifying in this case, do you agree with me that when a legislative body writes a statute dealing with your expertise, DSM and energy efficiency, that legislative body should use language that is clear and direct rather than language that is vague and ambiguous?

MR. JACOBS: Madam Chair, I object. Legal cause. In spite of his rather exquisite efforts to avoid so, I think it does still call for it.

MR. BURNETT: Madam Chair, again, I'm asking him as someone who engages in not only reading

apparently other states' statutes but ours here in Florida and opining on them. Again, I'm asking if he has opinions should legislatures writing those do so in a manner that's vague and ambiguous or clear and concise. I think anyone with walking-around sense could answer that.

COMMISSIONER EDGAR: Mr. Burnett.

MR. BURNETT: I'm sorry, ma'am.

COMMISSIONER EDGAR: I suggest we move on.

MR. BURNETT: Yes, ma'am.

BY MR. BURNETT:

Q. Well, let's, let's do something that we can agree on, Dr. Steinhurst. You agree with me that legislatures do like to put things in plain language when drafting a statute, don't you?

A. Legislators do whatever --

MR. JACOBS: Excuse me. Now we've graduated from just him doing this --

COMMISSIONER EDGAR: Well, and I apologize for interrupting, but I missed, I missed the question. I apologize. I, I just missed it. So I'm going to ask you to repeat for my benefit.

MR. BURNETT: Yes, ma'am.

BY MR. BURNETT:

Q. The question was, in fact, you agree with me

that legislatures like to put things in plain language when drafting a statute, don't you?

A. No.

MR. JACOBS: And, ma'am, and my objection is that that graduates from just him giving his legal opinion to him giving an opinion about what legislatures do when they make laws. So same objection.

MR. BURNETT: Madam Chair, this question was actually asked in his deposition without objection, and it's in the record, if that helps. But if it's your pleasure, I can certainly move on.

COMMISSIONER EDGAR: It is.

MR. BURNETT: Yes, ma'am.

BY MR. BURNETT:

Q. Now you contend that the recent amendments to the FEECA statutes in Florida require the PSC to use the TRC and Participant Tests as the primary cost-effectiveness test, don't you? And if you don't, then I can eliminate these questions.

A. I do.

Q. But in your review of the FEECA statutes in Florida, you didn't see any specific cost-effectiveness test mentioned by name, did you?

A. Correct.

Q. And you admit that based on your review and

analysis of those FEECA statutes, you did not see anything in your opinion that would have prevented the Florida Legislature from using language like, "PSC, use the TRC test from now on," did you?

MR. JACOBS: I'm sorry. Object. Speculation. Calls for speculation.

MR. BURNETT: Madam Chairman, he just admitted he's offering opinions as to what FEECA requires. He takes the opinion that it requires this Commission to use the TRC. And I'm now asking him --

COMMISSIONER EDGAR: I'm going to give you the opportunity to rephrase.

MR. BURNETT: Yes, ma'am.

BY MR. BURNETT:

Q. Dr. Steinhurst, you admit that in your review of the FEECA statutes you didn't see anything at all that would have prevented the Legislature from using explicit language in naming a test by name, did you?

MR. JACOBS: It sounds like the same question.

COMMISSIONER EDGAR: This one I'm going to allow.

MR. JACOBS: Thank you.

COMMISSIONER EDGAR: Thank you.

Can you answer the question? Do you need to have it repeated?

THE WITNESS: I believe I can answer the question.

COMMISSIONER EDGAR: Thank you.

THE WITNESS: I did not see any provision in the statute that would have prevented the Legislature from writing the statute in a different manner, but that seems to me to be a logical impossibility. It's my expert opinion that the plain language of the statute with regard to costs and benefits to ratepayers as a whole is the logical equivalent of the TRC Test and no other test.

BY MR. BURNETT:

Q. Dr. Steinhurst, switching to my last topic, you would agree with me that in your testimony you compared the FEECA utilities to what you call, quote, "the leading electric utilities in the country." Correct?

A. I'd like to see the exact wording.

Q. Sure. Page 29 of your prefiled testimony, beginning at Line 17. Line 19 you use, quote, "the leading electric utilities in the country." Do you see that?

A. I'm there now. Those lines don't make a comparison specifically. They state what in my opinion the leading electric utilities do. Elsewhere on, in

that response I make a comparison.

Q. I see. So, so we agree that you do make that comparison. And in your deposition we talked about a term that one often hears when making comparisons of things called apples to apples, did we not?

A. Yes. You asked me to define that term.

Q. Correct. And your definition of apples to apples is as follows, "A comparison of two things done in a manner that treats them in a similar way in all relevant aspects." Correct?

A. Yes.

Q. But despite your very well-phrased definition of apples to apples, you told me in your deposition that your comparison of the FEECA utilities to what you call the leading electric utilities in the country was not an apples to apples comparison; correct?

A. I'd like to see the specific language.

Q. Sure. If we turn to Page 52 of your deposition, Line 17, I asked you, "And with respect to making that comparison again using your definition, what, if anything, have you done to ensure that your comparison in that regard was apples to apples?"

You told me, "I have two responses. First, in this particular question and answer, an apples to apples comparison is not what is called for." Correct?

A. Yes.

Q. And after you told me an apples to apples comparison was not called for, you went on to tell me that you nonetheless considered any distinguishing factors between the two groups of utilities and did not find them impactful, didn't you?

A. And did not find them what?

Q. Impactful, meaningful.

A. I'm sorry. I don't see that.

Q. Well, if you would turn to Page 53 of your deposition transcript, Line 6, you say, "My second response is that based on my experience in this field, I considered what factors distinguished the FEECA utilities from the leading utilities in the country that are referred to here and I reached the conclusion that in terms for potential for cost-effective and achievable energy savings, that potential for the FEECA utilities would equal or exceed the potential for other leading utilities to the whole."

Did I read that correctly?

A. Yes, you did.

Q. And when I asked you where your analysis of your consideration of those distinguishing factors were located, you first told me that it was in your testimony, didn't you?

A. Yes. That was a misrecollection.

Q. That's right. And in fact when I questioned you further, you admitted that such analysis was not in your testimony, didn't you?

A. Yes.

Q. And with respect to some of the states that you suggest have good DSM models to compare Florida to, you agree with me that some of those states are deregulated with unbundled generation, transmission and distribution; correct?

A. Yes.

Q. And deregulated electric utilities with unbundled services are not exactly the same as regulated utilities with bundled services, are they?

A. No, they are not. But the demand-side management opportunities may be identical.

MR. BURNETT: Thank you, Madam Chair.

COMMISSIONER EDGAR: Thank you. OUC, any questions for this witness?

MR. PERKO: No questions.

COMMISSIONER EDGAR: No questions from OUC or JEA. Thank you.

Ms. Kaufman?

MS. KAUFMAN: Yes. Thank you, Madam Chair. I just have a couple.

CROSS EXAMINATION

BY MS. KAUFMAN:

Q. Good afternoon, Dr. Steinhurst.

A. Hello.

Q. I am Vicki Kaufman. I'm here on behalf of the Florida Industrial Power Users Group. And I just really have a question or two for you.

If you could turn to Page 4 your direct testimony.

A. I'm there.

Q. And in that question that begins on Line 5, you're talking about your concerns about the way in which avoided, in which utility avoided cost estimates were prepared by the utilities; correct?

A. Yes.

Q. And then on Line 9 you say it's hard to determine the specifics as to what the utilities did; correct?

A. Yes.

Q. From your testimony there, does that mean that you cannot tell if all the FEECA utilities were performing their calculations in the same way?

A. No. It means that I could not tell what each of them was doing.

Q. So you couldn't tell one way or the other

whether they were doing it the same way or whether they were not?

A. That's right. In discovery materials, in discovery responses provided since this testimony was filed I was able to learn a bit more about how some of the utilities performed their avoided cost analysis.

Q. Would it be true that, at least from what you know, that they are not all doing it in the same way?

A. Well, I know for a fact that two of the FEECA utilities are using an avoided plant concept based on an integrated gas combined cycle plant, and another is using an avoided cost concept based on a combustion turbine, a single cycle combustion turbine. So I know there are at least some differences.

Q. In your role did you look at the utilities' RIM calculations at all?

A. Only conceptually. The numerical examination was carried out by Mr. Mosenthal.

MS. KAUFMAN: Thank you. Thank you, Madam Chair.

COMMISSIONER EDGAR: Other questions from staff?

MS. BROWNLESS: Excuse me.

COMMISSIONER EDGAR: Okay. I was under the misimpression that this was a jointly sponsored witness.

MS. BROWNLESS: Oh, no, ma'am.

MR. JACOBS: Oh, no. I'm sorry. No, ma'am.

COMMISSIONER EDGAR: Okay. I thought I heard you say that. Then my apologies. Ms. Brownless.

MS. BROWNLESS: Thank you.

CROSS EXAMINATION

BY MS. BROWNLESS:

Q. Can you turn to Page 35 of your testimony, please.

A. 35?

Q. Yes, sir.

A. I'm there.

Q. Okay. And in this, Pages 35 and the following Page 36, you discuss Issue 10, which deals with demand-side renewable energy systems, right?

A. Yes.

Q. And goals for those systems.

A. Yes.

Q. Okay. On Lines 7 through 11 you talk about an illustrative cost-benefit analysis; is that right?

A. Yes.

Q. Okay. Has that illustrative cost-benefit analysis been provided to the Commission?

A. I believe it was provided as a discovery response. I do not know whether it's part of the group

exhibits put in by staff or others.

Q. That was a discovery response to the Florida Public Service Commission staff?

A. I don't recall who asked for the document.

Q. Thank you. You reference on Lines 23 Section 377.601(2)(h)(i); is that correct?

A. Yes.

Q. Okay. And where you indicate that the state policy is to encourage the research, development, demonstration and application of alternative energy resources, particularly renewable energy resources.

A. Yes.

Q. Does solar technology fall within the definition of renewable energy resources?

A. Excuse me?

Q. Does solar technology fall within the definition of renewable energy resources?

A. Absolutely.

Q. Have you had an opportunity to review Mr. Spellman's testimony?

A. To some extent, yes.

Q. Okay. Are you familiar with the fact that he is recommending each investor-owned utility to set aside a pot of money for R&D for solar projects?

A. Yes. I don't consider that a -- I mean, that

could be an appropriate policy, but I don't consider it to be equivalent to my recommendation.

Q. If a pot of money as recommended by Mr. Spellman were set aside, would you --

MR. BURNETT: Madam Chair, I'm sorry. I would object. The witness has testified that this is not part of his, his recommendation, and now she's continuing to ask about Mr. Spellman's recommendations to a pot of money.

COMMISSIONER EDGAR: Ms. Brownless?

MS. BROWNLESS: Well, I'm responding to his testimony on Page 36, Lines 6 through 9 and also 10 through 14. But I can rephrase my question.

COMMISSIONER EDGAR: Okay. Let's try that.

BY MS. BROWNLESS:

Q. Okay. As I read your testimony on Lines 10 through 13, you indicate that if goals were set, then there would be market transformation benefits; is that correct? I'm looking at Lines 11 through 13.

A. What I say on those lines is that long-term market transformation benefits would likely flow from the Commission making renewable technology, demand-side renewable technology a priority.

Q. And what do you mean by market transformation benefits?

A. I mean changes in the commercial arrangements in the state, the public understanding of the measures here in the state, and other factors that would alter the market for solar renewable technologies in a manner that would make them easier for customers to acquire, make them more readily available, perhaps bring the costs down.

Q. Okay. Would the goals, setting separate goals in your opinion include offering incentives?

A. I would prefer to see goals set by the Commission with regard to penetration or quantity of the resource acquired rather than goals regarding the amount of money spent or the type of incentive offered. I understand that setting Commission goals or issuing Commission directives on those other matters, such as budgets or incentive levels, can be useful policies, but my preference would be to set a target for actual megawatts deployed.

Q. Okay. In terms of market transformation benefits, would a set pot of money being allocated to solar be better than no goals and no pot of money?

A. In general terms, yes, I would want to see such a monetary set-aside accompanied by some standards that would ensure that the money would be well spent.

Q. Okay. So is it fair to say then based on your

testimony that such a set-aside would assist in the accomplishment of the intention of Section 377.60?

MR. BURNETT: Madam Chair, I object on two grounds. Now she's asking for legal interpretations, specifically mentioning a statute to this witness. And also this witness's opinions with this regard are contained on 15 lines on one page of his testimony, so I'd also object to friendly cross and bolstering.

COMMISSIONER EDGAR: Ms. Brownless?

MS. BROWNLESS: We can withdraw the question. That's fine.

COMMISSIONER EDGAR: Okay.

MS. BROWNLESS: That's it for me. Thank you.

COMMISSIONER EDGAR: All right. Thank you. Now are there questions from staff?

MS. FLEMING: We have no questions.

COMMISSIONER EDGAR: No questions. Questions from the bench? Commissioner Skop.

COMMISSIONER SKOP: Thank you, Madam Chair. Good afternoon, Mr. Steinhurst. If I could turn your attention back to Page 35, please, Lines 10 through 13. Can you briefly explain the analysis that was done with respect to demand-side PV? I think that you mentioned it did not pass the TRC, but you talk about the Participant Test. So if you could briefly

elaborate on that, I'd appreciate it.

THE WITNESS: Yes, I'd be happy to. We considered an installation made in one of two years, 2010 and 2015, and we used a prototype technology. I believe it was either 2 or 2.5 kilowatts of photovoltaic panels with associated supporting equipment. And we developed an estimate of the capital cost, the tax incentives available, the amount of power that would be produced by such a unit installed in the State of Florida, the avoided energy and capacity benefits based on the avoided cost figures supplied by one of the FEECA utilities. And we also factored in some carbon costs, avoided carbon costs as well.

We took those values and for each of the two start years compared the stream of annual costs and benefits on present value basis. And we did that twice for each start year: Once looking at the participant benefits; in other words, the retail rate reduction seen by the participating customer, the amount of money that they would spend after incentives and tax credits and so on, and compared that participant's costs and savings. And then we did it a second time using the TRC Test to compare the total cost of the equipment, including incentives against the savings at the, in power costs and carbon costs at the utility level.

COMMISSIONER SKOP: Okay. If I could stop you there.

THE WITNESS: And as I explain in my testimony --

COMMISSIONER SKOP: Okay.

THE WITNESS: -- the Participant Test was almost passed in 2010 and was passed in 2015, while the TRC Test was not passed for either start date, unless Florida state tax incentives were included as a deduction from the cost of the equipment, in which case the measures did pass the TRC Test.

COMMISSIONER SKOP: Okay. And that's what I wanted to further elaborate on. Would it be correct to understand that, that the convertible investment tax credit under the federal economic stimulus package was included in your first screen before Florida incentives were applied?

THE WITNESS: The federal incentive was included every time. The state incentive was not included in the TRC tests to begin with, but then we did a sensitivity analysis where we did include the state incentive.

COMMISSIONER SKOP: Okay. And I recognize that those are not in themselves unlimited. So, again, I just wanted to flesh that out.

Can you also, beginning on Line 16 through 19, talk about the participant -- the passing of the, the passing of the Participant Test and your conclusions with respect to the legislative intent?

THE WITNESS: Yes, sir. With regard to the Participant Test we determined that, taking into account the available incentives, for a 2010 installation the participant would be very close to breaking even. There's a small fractional difference in the cost and benefits, small enough that I personally think that many customers would, would be interested in installing the technology. And doing the same test for a 2015 start date, we found that the Participant Test was passed easily.

Now what that implies to me with regard to the Florida Statute that's referenced here is that it would take very little in the way of utility incentives or -- to effectively encourage the demonstration and application of this alternative energy resource, namely photovoltaic panels of a residential size.

COMMISSIONER SKOP: Okay. And then if I could ask you -- and, Madam Chair, I just have a few more questions after this. But if I could ask you to specifically read Lines 21 through 25 of your direct filed testimony on Page 35, please.

THE WITNESS: You're asking me to read that out loud?

COMMISSIONER SKOP: Yes, please.

THE WITNESS: "Alternatively, a small goal now to build infrastructure and public awareness for future full deployment could be deemed reasonable, given the language of Florida Statute 377.601(2)(h)(i), which says that State policy is to, 'Encourage the research, development, demonstration and application of alternative energy resources, particularly renewable energy resources.'"

COMMISSIONER SKOP: Thank you, Dr. Steinhurst. And just for the record, you're not an attorney; correct?

THE WITNESS: That is correct.

COMMISSIONER SKOP: Okay. But that is your professional interpretation of that statutory provision?

THE WITNESS: That is my understanding of how an expert in my field would apply the language in the statute.

COMMISSIONER SKOP: Okay. Thank you. With respect to I guess the discussion this morning, Ms. Brownless has suggested that the primary recommendation under your testimony would be to establish a separate pot of funding for demand-side

renewable systems. But am I correct to understand that on Lines 21 through 25, if that separate pot of money were not available, then doing something alternatively on a smaller scale might facilitate the legislative intent?

THE WITNESS: I'm sorry to disagree with you, but that's not my recollection of how I answered her question.

My recollection is that I said my preference would be to set a megawatt resource acquisition target rather than a monetary set-aside, but that a monetary set-aside or some other directive with regard to incentives from the Commission could also serve to encourage market transformation and advance the goals set out in this state policy language.

COMMISSIONER SKOP: Okay. So let me try and rephrase that. And, again, we've had lengthy days of testimony. So my understanding is, from your position is that you set a numerical megawatt goal in lieu of establishing a separate pot of money. Am I correct to have heard that?

THE WITNESS: Yes.

COMMISSIONER SKOP: Okay.

THE WITNESS: And I would accept some of the alternatives that I discussed earlier --

COMMISSIONER SKOP: Okay.

THE WITNESS: -- in lieu of that, but that would not be my preference.

COMMISSIONER SKOP: Okay. But absent either one of those, whether it be a numerical target goal or a separate funding pool, alternatively on Lines 21 through 25 would it be correct to assume or could it be interpreted based on your testimony that doing something on a smaller scale might be a reasonable alternative?

THE WITNESS: Well, I didn't say anywhere whether the scale of my recommendation should be large or small. I think it should be commensurate with the state of the market and the size of the available resource. But with that caveat, I would agree that something might be better than nothing.

COMMISSIONER SKOP: Okay. And with respect again in the context of Lines 21 through 25 of your prefiled testimony on Page 35, could that alternative potentially include putting solar PV on Florida's public schools?

THE WITNESS: That's a more detailed concept than I've had a chance to think about. If there were an appropriate method for moving towards that objective, it's something the Commission could consider. I'm not able to make a recommendation on that score sitting here

today.

COMMISSIONER SKOP: Okay. So I guess, if I understood your response, your analysis that you performed was more on a high level abstract concept rather than particular implementation strategy?

THE WITNESS: Abstract in the sense of it being fairly general, but concrete and objective in the sense of looking at a very specific piece of technology, as it would have costs and benefits here in Florida for a specific utility.

COMMISSIONER SKOP: Thank you. And just in summation, I guess bringing this back to my comments yesterday, the point that I was attempting to make yesterday regarding the hypothetical goal of placing PV solar on Florida's K through 12 public schools was that in 2008 alone four of the five Florida IOUs spent $278 million, subject to check, on energy conservation program costs. In comparison, the analysis I presented yesterday, essentially you could put 8 KW of solar PV on every one of Florida's existing K through 12 public schools for the sum of $161 million.

So, in summary, I guess my comments yesterday were not meant to criticize the IOUs. In fact, I commend the great progress that has been made to date. But in any goal setting exercise there's always room for

looking at establishing priorities, looking at new ways of doing things.

And, again, what I was trying to respectfully suggest, given the concerns about mitigating ratepayer impact, was that this might be readily accomplished by freeing up existing constant dollars for programs with low penetration rates and redirecting those fundings towards maybe trying to do more in terms of things that have these collateral benefits, such as educational value and such. And, again, I'll leave that to the utilities.

But, again, in goal setting I feel it's incumbent upon me as one of five Commissioners to just express my opinion. And I think that there has been great progress. FPL has put solar on schools. Progress has. I believe our other IOUs have done that also. That's a good thing. I'm just merely -- the challenges -- can we find a way to do more of it?

So, again, enough said. I just wanted to clarify my comments and --

COMMISSIONER EDGAR: Commissioner, do you have questions for this witness?

COMMISSIONER SKOP: No.

Thank you, Dr. Steinhurst.

COMMISSIONER EDGAR: Thank you.

Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you, Chairman. I'm making a mess up here.

Mr. Steinhurst, I was interested in the part of your testimony where you were talking about the shortcomings, and I kind of note tongue in cheek that I can't say it with as much passion as Mr. Burnett. But it's that section of your testimony, it's around Page 10, and I'm particularly interested in the part where you talk about DSM for at-risk citizens.

THE WITNESS: Yes.

COMMISSIONER McMURRIAN: And you say on Line 15 and 16, your testimony says that programs can be fielded that are feasible for these customers and attractive to them. And to me that suggests that you think there are programs that could meet a Participant Test for at-risk citizens. Are there programs that you could share with us that would perhaps meet RIM and/or TRC that would be aimed at at-risk citizens, and can you talk about some of those for me?

THE WITNESS: I can't offer any suggestions that would be consistent with the RIM Test.

COMMISSIONER McMURRIAN: Okay.

THE WITNESS: In my experience, hardly any worthwhile energy efficiency program passes the RIM

Test, no matter how valuable it is under any of the other tests.

But in terms of providing insight into how programs can be beneficial for renters and manufactured housing dwellings, I can give you a couple of thoughts on that score, if you'd like.

COMMISSIONER McMURRIAN: Sure. Go ahead.

THE WITNESS: Okay. With regard to renters and in some instances manufactured housing occupants, one of the biggest barriers are access to capital, time and information barriers for, at least for those renters who are, who are employed. And the barrier that's distinctive to renters and some types of manufactured housing occupants is what's called the split incentive barrier.

If you picture someone moving into an apartment and wishing to improve the energy efficiency in the apartment, they can start by changing screw-in lightbulbs perhaps, but they would very quickly run into a limitation where the appliances, the building shell, the window treatments and so on, the weather stripping, all belong to the landlord.

The landlord has an incentive that may be focused on the first cost, in other words, not having to invest more money than necessary from the landlord's

perspective, while the occupant is concerned with the monthly electric bill. So the incentives are split. The occupant has part -- has the incentive that relates to the bill and the landlord has the incentive that relates to the capital costs.

COMMISSIONER ARGENZIANO: I'm sorry. Madam Chair, could I ask the speaker to please speak into the mike a little louder?

COMMISSIONER EDGAR: Sure. Thank you, Commissioner.

Yeah, just a little forward.

THE WITNESS: I will do my best.

COMMISSIONER ARGENZIANO: Thank you. Thank you.

THE WITNESS: Okay. So we have the split incentive situation where the renter has the incentive that comes from having to pay the bill every month, and the landlord has an incentive from trying to keep down the investment cost for any upgrades or maintenance.

And programs I've seen that are very successful in dealing with that put together a package where, of measures and financing terms, rebates and so on that are designed to attract the landlords and result in savings for the occupant. The same issue and solution applies also to small businesses, many of which

are in rented or short-term leased properties.

Manufactured housing has some different characteristics. There's a bit of a split incentive even if the occupant owns the mobile home or the manufactured home, because they often rent the ground on which it stands, which can put a crimp into things like foundation improvements.

But, again, programs can be put together at the state level, at the utility level to optimize the measures that are ready to go as soon as the crew gets to the site for energy conservation in manufactured housing. And that can be fine-tuned to reflect whatever vintage of manufactured housing is prevalent in a given area.

So with attention and care to the details and who has what incentive, it's possible to put together programs that can be very powerful for those renters and manufactured housing occupants.

COMMISSIONER McMURRIAN: Okay. And I guess one final question, Madam Chair.

Is there any state in particular that's got some programs like that that would be a good example? And I realize at this stage we're looking at setting goals, we're not looking at individual programs so much, but is there a state that has information or that's been

a good model about some programs with respect to renters and -- I guess renters in either case?

THE WITNESS: Yes. I personally reviewed and signed off on when I was a regulator on programs of that type in the State of Vermont.

COMMISSIONER McMURRIAN: Vermont.

THE WITNESS: And I believe that most of the states in the Northeast have similar activities underway.

COMMISSIONER McMURRIAN: Okay. Thank you very much, Mr. Steinhurst.

Thank you, Madam Chair.

COMMISSIONER EDGAR: Thank you.

Questions on redirect?

MR. JACOBS: Thank you, Madam Chair. Very briefly.

REDIRECT EXAMINATION

BY MR. JACOBS:

Q. Dr. Steinhurst, you were asked questions in your deposition and I think earlier regarding the National Action Plan for Energy Efficiency.

A. Yes, I was.

Q. Could you explain what that is and your role in it?

A. Certainly.

MR. BURNETT: Objection. Beyond the scope of cross. I didn't ask him a single question about the National Action Plan.

COMMISSIONER EDGAR: Mr. Jacobs.

MR. JACOBS: Let's go to that.

BY MR. JACOBS:

Q. You were asked questions regarding your distinction of leading -- regarding how you distinguished leading utilities; isn't that correct? We're over on Page -- I lost my -- I thought I had marked it.

Do you -- you do recall being asked questions from your deposition regarding how you distinguish leading companies, is that correct, leading utilities?

A. Yes, I do.

Q. Do you have a copy of your deposition there?

A. I do.

Q. Could you turn with me over to Page 106? Actually not there yet. Turn over to Page -- yes, 108.

A. I'm there.

Q. Go with me down to Line 21.

A. Yes, I see that.

Q. Do you see that question and answer exchange there? Do you recall that exchange during your deposition?

A. Yes, I do.

Q. Was that relating to this whole question of how you distinguished leading utilities and leading programs?

A. It is.

Q. And what was your answer to that question there?

A. I referred the questioner to Chapter 6 of the National Action Plan for Energy Efficiency.

Q. And that's included in your answer here; is that correct?

A. I beg your pardon?

Q. And that's included in your answer to this question here; correct?

A. Yes, it is.

Q. Now could you tell us what the National Action Plan is and your role in it?

COMMISSIONER EDGAR: Hold on. We have an objection pending. And I asked you to respond to Mr. Burnett's --

MR. JACOBS: I'm sorry.

COMMISSIONER EDGAR: That's okay. That's all right. I'm hungry too, so. If you could please respond to Mr. Burnett's objection.

MR. JACOBS: I'm laying a foundation for the

response to his questioning regarding his first topic on cross.

COMMISSIONER EDGAR: Mr. Burnett.

MR. BURNETT: Yes, ma'am. My question was did he do anything to make sure his comparison of these leading utilities were apples to apples, the FEECA utilities. I believe Mr. Jacobs' question was: Please describe your involvement in the National Action Plan.

COMMISSIONER EDGAR: In this instance I agree with Mr. Burnett. I'm not seeing the link.

MR. JACOBS: Let me be clear then. Let me be very clear. I will go right to that point.

BY MR. JACOBS:

Q. How did you reconcile this apples to apples comparison with the leading (phonetic) utility programs that you were questioned on earlier?

A. I identified the features of the Florida economy demographics and energy supply and energy use sectors that might differ from those in other, in leading utility programs, and considered each one to determine whether it would make the FEECA utilities more or less likely to have comparable savings or leave them unchanged.

In general, the conclusion I reached in each case was that for most programs, most energy efficiency

programs, the FEECA utility differences from the leading utilities would actually make --

MR. BURNETT: Madam Chair? Excuse me. Madam Chair?

COMMISSIONER EDGAR: Mr. Burnett.

MR. BURNETT: Again, I'll have to object to this as outside of the scope of his testimony. As I elucidated in my cross-examination, I asked this witness where his analysis was. He originally stated in his testimony, then admitted that it was not in his testimony. And he even goes on to say in his deposition that there's no particular documentation of his thought process at all. So now he would be offering testimony that would be surrebuttal and certainly outside of anything that he has done in this case.

COMMISSIONER EDGAR: Mr. Jacobs?

MR. JACOBS: If I may? There was free rein and I think wide latitude given to, to contrasting Dr. Steinhurst's prefiled testimony with his testimony and his deposition, and I believe both are a part of the record.

And in the context of resolving the legitimate question that Mr. Burnett asked, we're simply asking now that he give the response that was given in his deposition to this very line of questioning.

Now it's outside the scope, I guess it's outside the scope of maybe his direct, but absolutely relevant to the answer to the question that I thought was being sought on direct. How did he do the analysis of the apples to apples comparison? I thought that was exactly the answer that was being given here just now.

COMMISSIONER EDGAR: Ms. Helton.

MS. HELTON: Madam Chairman, as I understand the use that Mr. Burnett had of his -- Mr. Steinfeld -- I'm sorry, Steinhurst's deposition was for impeachment purposes and only for impeachment purposes. So it seems to me that we are going afield here of what was the scope of Mr. Steinhurst's cross-examination.

COMMISSIONER EDGAR: I concur.

MR. JACOBS: We'll move on.

BY MR. JACOBS:

Q. Dr. Steinhurst, would you go with me to Page 31 of your prefiled testimony, please.

Earlier you were questioned about what you had done in the way of any Florida-specific analysis to support your goals; is that correct?

A. Yes.

Q. Would you go with me to Line 13 on Page 31 of your testimony. Do you recall these, this testimony?

A. Yes, I do.

Q. Could you summarize what it states?

MR. GUYTON: I'm sorry. Could I, could I just ask for a rephrasing of the question? I'm not -- is he just asking to summarize his direct testimony?

COMMISSIONER EDGAR: And actually, Mr. Jacobs --

MR. JACOBS: In the interest of time --

COMMISSIONER EDGAR: -- I wasn't, I wasn't exactly sure what the question was either. Maybe the witness was, but I wasn't, so if you'd just try again.

MR. JACOBS: We'll walk through it. In the interest of time I wanted to just cover this very generally, but I'll walk through it.

COMMISSIONER EDGAR: I appreciate that.

BY MR. JACOBS:

Q. Okay. Would you read us, Dr. Steinhurst, would you read for us Lines 13 through 23 of your prefiled direct testimony?

A. "The tables in the Exhibit WS-1 are formatted in the manner requested under Issues Number 8 and 9 in the Staff Issues List with one modification. Because I based my numeric goals on data in the FEECA utility Ten-Year Site Plans, and because those plans do not disaggregate seasonal peak demands by customer class in the way that the Staff Issues List does, I was only able

to provide aggregate seasonal peak demand savings goals."

Q. Thank you. So is it fair to say that your analysis was founded on the Florida-specific data?

MR. BURNETT: Objection. Leading. Mischaracterizes evidence.

BY MR. JACOBS:

Q. On what basis were your goals founded then, Dr. Steinhurst?

A. In part on the analysis that led me to adopt a 1 percent per year savings target and in part on FEECA utility Ten-Year Site Plans, with the exception of FPUC, which did not file one.

Q. Would you go with me to Page 32 of your prefiled?

A. Yes.

Q. Beginning on Line 13, the sentence beginning "Because," could you read from there to Line 17?

A. "Because the most recent Ten-Year Site Plans provide forecasts only through 2018, it was necessary to extrapolate goals for 2019. I adopted forecast values for 2019 electric energy sales and peak demands equal to the 2018 company forecasts plus a percentage increase over 2018 at the same rate as the increase from 2017 to 2018 in those forecasts."

Q. So in point of fact only your goals for 2019 were not directly based on Florida data, but they were extrapolated from Florida data; is that correct?

MR. BUTLER: Objection. Leading. Mischaracterization of evidence. Mr. Jacobs is testifying.

MR. JACOBS: I'll restate.

BY MR. JACOBS:

Q. How would you characterize your goals for 2019 then?

A. They were, they were formed in the same way as the goals for the other years except that the load forecast on which, to which the 1 percent goal was applied was extrapolated from earlier years.

Q. Thank you. Would you go with me to Page 7 of your prefiled testimony.

A. Yes.

Q. Would you read for me beginning at Line 1 through Line 7?

A. "However, in the previous 2004 goal-setting proceeding, FPL appears to have relied on an avoided unit with an in-service date of June 1, 2007, (Petition for Approval of Florida Power & Light Company's Standard Offer Contract, December 5, 2003, Docket 031093). This proceeding would also have covered the two hypothetical

measures I described above, but would have assigned them each an approximately equal avoided capacity cost value since they would both have been installed after the effective date of the in-service date of the avoided unit."

Q. Earlier there were some concerns about your use of the word "hypothetical." Would you describe how you resolved that issue in this discussion?

A. Well, in this particular paragraph the word "hypothetical" refers to energy efficiency, to energy efficiency measures of different lifes and different start dates for the purpose of illustrating a point, not for making an actual recommendation to do anything.

Q. And in order to, and in order to address that very concern, what did you do in this particular example beginning -- well --

A. I'm not sure what you mean.

Q. Well, I believe you stated here very clearly beginning from Lines 1, 2, 3 just what you did here.

A. Yes.

Q. You were -- in order to make the statement -- let me put it this way. In order to make the statement that you made in Lines 1 through 3, what did you have to review in order to make that statement?

A. Oh, I had to review --

MR. GUYTON: Objection. This is well beyond the scope of cross-examination. This has nothing to do with the hypothetical examples. This is just simply mining for more detail the direct which this witness has filed. He certainly could have done it in direct. It's beyond the scope of cross or redirect.

MR. JACOBS: May I, Madam Chair? I'll accept other counsel's objection, although we stated that earlier. The -- there was a litany of examination on cross regarding Dr. Steinhurst's hypotheticals, conjectures and examples. We've only chosen to look at one example here in his testimony. If need be, we could go through the litany, but only, and only, I've chosen to look at one example here where he explains his background and analysis and then shows why he's trying to do it, because of the very concern I thought counsel was addressing, that maybe we were looking at hypotheticals.

So this is an effort to directly respond to the line of questioning. It's in his testimony, I really don't have a need to lay it. We're all waiting for lunch. I can withdraw the question.

COMMISSIONER EDGAR: Okay. Thank you, Mr. Jacobs. I appreciate that cooperation, as well noting also that we were, have been trying to

accommodate Mr. Steinhurst's time frame and we have gone way beyond what I had been -- what I understood to be the time frame that we would be working within, and our court reporter needs a break and so do many of us. So let's --

MR. JACOBS: Thank you. One final question and we're done.

COMMISSIONER EDGAR: That would be great. Thank you.

BY MR. JACOBS:

Q. Earlier I believe in your response to a question you said that hardly any worthwhile programs pass RIM Test. Just to clarify, do you recall what the question was that you were responding to when you gave that answer?

A. I was being asked if I could offer suggestions for programs to help renters and manufactured housing occupants that would pass the RIM Test and the Participant Test.

Q. And so your statement was really within the context of that question?

A. Oh, absolutely.

MR. JACOBS: Thank you. No further questions.

COMMISSIONER EDGAR: All right. Thank you. Exhibits?

MR. JACOBS: We would move, of course, the amended Exhibit 79, and I believe it was one -- I didn't write it down, Madam Chair, but the errata sheet, which was 170.

COMMISSIONER EDGAR: Let me get there.

MR. JACOBS: And the late-filed deposition exhibit. Let me get the correct numbers for you.

COMMISSIONER EDGAR: Okay. Hold on. I think we're there.

Ms. Fleming?

MS. FLEMING: The errata sheet was 169. The late-filed depo exhibit was 170.

COMMISSIONER EDGAR: Okay. Let's start with 79. Any objections, concerns?

MS. HELTON: Madam Chairman, if we could just reflect for the record that that was the amended Exhibit 79.

MR. JACOBS: Thank you. And we will provide revised copies to the parties by in the morning.

MR. BURNETT: No objection.

COMMISSIONER EDGAR: Okay. With that understanding then, revised Exhibit 79 is admitted into the record.

(Revised Exhibit 79 entered into the record.)

That brings us to 169 and 170. Any

objections?

MR. BURNETT: No objection.

COMMISSIONER EDGAR: Okay. We'll enter Exhibit 169 and 170 into the record.

(Exhibits 169 and 170 entered into the record.)

Any other matters before Mr. Steinhurst is excused? Seeing none. Okay.

Mr. Steinhurst, thank you.

MR. JACOBS: Thank you again, Madam Chair, for your endurance, and the parties as well.

COMMISSIONER EDGAR: Thank you.

Mr. Steinhurst, thank you very much. Safe travels.

Okay. We are going to go on lunch break. My understanding, let me verify, is that when we come back, we will revert back to the order of witnesses and begin with Mr. Dean. Is that everyone else's understanding as well?

Okay. Then -- and it's 2:00. We will come back at -- does 3:00 work, Commissioners, staff? Okay. We will come back at 3:00 and see how we can move forward. We are on break.

(Transcript continues in sequence with Volume 6.)

STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, LINDA BOLES, RPR, CRR, Official Commission Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorneys or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 17th day of August, 2009.

Linda Boles

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