BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (FLORIDA POWER & LIGHT COMPANY).	DOCKET NO. 130199-EI
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (DUKE ENERGY FLORIDA, INC.).	DOCKET NO. 130200-EI
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (TAMPA ELECTRIC COMPANY).	DOCKET NO. 130201-EI
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (GULF POWER COMPANY).	DOCKET NO. 130202-EI
COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (JEA).	DOCKET NO. 130203-EM

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VOLUME 3

Pages 464 through 796

PROCEEDINGS: HEARING

COMMISSIONERS PARTICIPATING: CHAIRMAN ART GRAHAM
COMMISSIONER RONALD A. BRISÉ
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER EDUARDO E. BALBIS
COMMISSIONER JULIE I. BROWN

DATE: Tuesday, July 22, 2014

TIME: Commenced at 9:33 a.m.
Concluded at 1:35 p.m.

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: LINDA BOLES, CRR, RPR
Official FPSC Reporter
(850) 413-6734

APPEARANCES: (As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

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158	Dept. of Energy Website; Water Heater Tank Insulation		473
171	JEA Proposed Stipulation	471	472
172	Average Consumption v. Summer Peak Demand (Rural and Residential)	572	675
173	Average Consumption v. Summer Peak Demand (Commercial)	572	675
174	Average Consumption v. Summer Peak Demand (Industrial)	572	675
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176	Net Energy for Load v. Retail Winter Peak Demand	572	675
177	Sierra Club's Testimony Excerpt on Duke Energy's Savings Levels	587	675
178	Duke's Response to Sierra Club's 1st Interrogatories, No.s 1-18	609	675
179	Excerpt of Duke Response to Sierra Club's 1st Interrogatories, Nos. 1-18	609	675
180	Duke's Response to Sierra Club's 1st Interrogatories, Nos. 1-18, Bates DEF-DSM-02547-02254	609	675
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182	2013 Residential End-Use Study - Florida Results by Duke Energy	619	675

EXHIBITS

NUMBER:		ID.	ADMTD.
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184	(Late-Filed) TRC Calculation	676	
185	TECO Payback and Fuel Sensitivity Analysis	740	795
186	TECO's Summary of 2013 DMS Program Accomplishments	763	795
187	Excerpt of TECO's Dkt. 130201, Staff's 2nd set of Interrogatories, No. 25	766	795
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P R O C E E D I N G S

(Transcript follows in sequence from Volume 2.)

CHAIRMAN GRAHAM: Good morning, everyone. I am glad to see you all made it back here safely this morning after the fun times we had yesterday.

All right. We have a couple of things that weren't to a finish spot yesterday that we need to conclude today before we continue the hearing -- well, actually we are continuing the hearing, but before we continue with the different witnesses.

First, we have a JEA stipulation that we need to deal with. Yes, sir.

MR. PERKO: Thank you, Mr. Chairman. Gary Perko on behalf of JEA.

As the Commission knows, JEA is the only municipal utility in this docket, and currently JEA's board is in the process of evaluating its DSM portfolio, but there are certain core measures that we know will be included in that portfolio. This stipulation would recognize that and establish goals accordingly, based on the savings from those core programs. It would also require JEA to annually report savings from all its DSM offerings, including non-FEECA programs, somewhat consistent with -- this stipulation is somewhat

consistent with what the Commission did in the last goals hearing.

And it's my understanding that Wal-Mart is willing to stipulate as to the positions in the stipulation for Issues Number 1 and 11, and no other party opposes the stipulation at this time.

And with that, we would request that the Commission approve the stipulation so that JEA could be excused from the hearing.

CHAIRMAN GRAHAM: All right. Well, the little cheat sheet I have here in front of me says that there's OPC, NAACP, Sierra Club, and Wal-Mart. You've already said that Wal-Mart was fine, and I've talked to Schef about this. What about OPC?

MR. SAYLER: Good morning, Mr. Chairman. We didn't intervene in the JEA docket, so we have no position on the stipulation. We take no position.

CHAIRMAN GRAHAM: Okay.

NAACP.

MR. DREW: Good morning, Mr. Chairman. We took no position.

CHAIRMAN GRAHAM: Okay.

Sierra Club.

MS. CSANK: Good morning, Mr. Chairman. We took no position.

CHAIRMAN GRAHAM: Okay. Sounds good. All right. So I haven't heard anybody say they're against the stipulation.

So, Commissioners, I guess we have to vote to accept the stipulation or to not accept the stipulation.

Commissioner Brown.

COMMISSIONER BROWN: Thank you, Mr. Chairman. What was the last exhibit number? Because I know that the stipulation will be part of the comprehensive -- the overall exhibit list.

CHAIRMAN GRAHAM: The stipulation is going to be 171.

(Exhibit 171 marked for identification.)

COMMISSIONER BROWN: Mr. Chairman, I move that we approve the JEA proposed stipulation and enter it into the record as Exhibit Number 171.

COMMISSIONER BRISÉ: Second.

CHAIRMAN GRAHAM: That's been moved and seconded.

Commissioner Balbis.

COMMISSIONER BALBIS: Thank you, Mr. Chairman. I just wanted to point out that this stipulation is, if we approve this, is taken in its entirety. And because all of the utilities in each of the different dockets are facing the same issues, and I just want to be clear

that we are not taking the position on each one of those issues, and that it is taken as a whole, similar to a settlement agreement. And with that, I'd support the stipulation.

CHAIRMAN GRAHAM: Okay. Any further discussion on the motion? Seeing none, all in favor, say aye.

(Vote taken.)

Any opposed? By your actions, you've approved the JEA stipulation, and we have entered the Exhibit 171 into the record.

(Exhibit 171 admitted into the record.)

And that all being said, I guess, JEA, you're excused.

MR. PERKO: Mr. Chairman, if I could just confirm that the stipulation will be reflected in the order such that no post-hearing briefs are required.

CHAIRMAN GRAHAM: That's correct.

MR. PERKO: And with that, Commissioner, we would just like to express our appreciation to the parties and staff as well as the Commission for working with us to resolve this matter. Thank you.

CHAIRMAN GRAHAM: Okay. Thank you.

Okay. One down. The next one is we're dealing with the Exhibit 158, if we are going to enter

that into the record.

Mary Anne.

MS. HELTON: Yes, sir. Good morning. Staff recommends -- or actually I guess I should say I recommend that you admit the exhibit and give it the weight that it's due.

CHAIRMAN GRAHAM: Can you explain?

MS. HELTON: There is a gray line, and there was actually debate amongst the lawyers upstairs about whether to admit it or not. After consulting with our appellate expert, we decided that the line did move more towards admitting it. It is a government record on a website, and there is -- our policy and tendency always has been to admit and then give it the weight that it's due, and that's consistent with that.

CHAIRMAN GRAHAM: Okay. I agree. Better be safe than sorry. I was just trying to understand why we came to that conclusion.

All right. That being said, we had scratched 157, so that is not in the record, but 158 is in the record.

(Exhibit 158 admitted into the record.)

All right. So we are circling back around to our next witness, because we did conclude with Dr. Sims. And the next witness is Duke's.

MR. GUEST: Mr. Chairman, I had a procedural matter that I would like to raise.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: Karl Rábago, our solar expert, is, is in Albany working with folks in New York. He was going to be here tomorrow in an abundance of caution to get here early. Obviously he doesn't need to. We would like to take him out of order so that he comes before the, the witnesses for the utilities that will testify about solar. Mr. Rábago talks only about solar, nothing else. And so we had a previous agreement to let him testify on Wednesday, so I think that that's resolved. And if that's all right with the Commission, we'd like to take him out of order in that way.

CHAIRMAN GRAHAM: This was Karl Rábago?

MR. GUEST: Yes, Mr. Chairman, Karl Rábago.

CHAIRMAN GRAHAM: And you want to take him -- I'm sitting here looking at the order now, so where in this list were you talking about him?

MR. GUEST: It would be before Mr. Koch and Mr. Sim testify on rebuttal.

CHAIRMAN GRAHAM: I guess I'm talking to the utilities. Any concern with that?

MR. BUTLER: Wouldn't that happen anyway, that he'd go before our rebuttal witnesses? You mean just

immediately before them?

CHAIRMAN GRAHAM: Well, they're saying that he's not going to be here when he's supposed to be here, and if they can just take him up I guess when he gets here. But they still plan on him being before your rebuttal witnesses.

MR. BUTLER: I mean, I think for FPL, since our direct case is over, and if he appears before our rebuttal case, then it's fine. You know, any time in that period between now and then is fine with us.

CHAIRMAN GRAHAM: What if he doesn't get here until after your rebuttal case? Then that's problematic?

MR. BUTLER: We wouldn't be as fine with that, no. I mean, I think we are entitled to have the, you know, sort of rebuttal as the last word, the party with the burden of proof. And, no, we would object to that.

CHAIRMAN GRAHAM: Okay.

So say you all?

MS. TRIPLETT: Yes.

MR. BEASLEY: Yes, sir.

MR. GRIFFIN: Yes.

MR. MOYLE: Mr. Chairman, FIPUG -- over the years, Jeff Pollock has come in from St. Louis and the parties have been very cooperative about taking him when

witnesses are coming out. So we have no objection and would suggest it be encouraged.

CHAIRMAN GRAHAM: We will -- tell him to get here as soon as he can. We'll deal with it depending on when he shows up, but I believe we can get his testimony in.

MR. GUEST: Thank you.

CHAIRMAN GRAHAM: All right. Duke.

MS. TRIPLETT: Okay. Thank you, Mr. Chairman. Duke Energy Florida will call Tim Duff to the stand.

And, Mr. Duff, I believe you were sworn yesterday.

THE WITNESS: Yes.

Whereupon,

TIMOTHY J. DUFF

was called as a witness on behalf of Duke Energy Florida and, having first been duly sworn, testified as follows:

EXAMINATION

BY MS. TRIPLETT:

Q So will you please introduce yourself to the Commission and provide your address.

A I'm Timothy J. Duff. I work at 526 South Church Street, Charlotte, North Carolina 28104.

Q Who do you work for and what is your position?

A Duke Energy Business Services as the General

Manager, Customer Regulatory Strategy and Analytics.

Q And have you filed direct and rebuttal testimony and exhibits in this proceeding?

A I've adopted the direct testimony of Duke Energy witness Helena Guthrie, and have filed rebuttal testimony, yes.

Q And do you have those prefiled direct and rebuttal testimonies with you?

A I do.

Q Do you have any changes to make to those testimonies?

A Not to my knowledge.

Q If I asked you the same questions in your prefiled direct and rebuttal testimony today, would you give the same answers that are, that are in your prefiled testimony, with the corrections that have previously been filed with the Commission?

A Yes.

MS. TRIPLETT: Mr. Chairman, we'd request that the prefiled direct and rebuttal testimonies be entered into the record as though read today.

CHAIRMAN GRAHAM: Let me make sure that I'm correct here. We are entering Helena Guthrie's prefiled direct testimony.

MS. TRIPLETT: Yes, sir. As adopted by

Mr. Duff. That's right.

CHAIRMAN GRAHAM: Thank you. Yes.

MS. TRIPLETT: And also the rebuttal; he's going to be answering questions about both his direct and rebuttal here.

CHAIRMAN GRAHAM: That's correct, yes.

MS. TRIPLETT: Thank you.

DUKE ENERGY FLORIDA

DOCKET NO. 130200-EI

DIRECT TESTIMONY OF

HELENA (LEE) GUTHRIE

INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Helena "Lee" Guthrie. My business address is 299 First Avenue North, St. Petersburg, Florida 33701.

Q. By whom are you employed and in what capacity?

A. I am employed by Duke Energy Florida, Inc. ("Duke Energy Florida," "DEF," or "the Company") in the capacity of Senior Strategy and Collaboration Manager in the Customer Planning and Analytics Department.

Q. Please describe the duties and responsibilities of your position with Duke Energy.

A. My responsibilities include the regulatory planning, support and compliance of the Company's Demand-Side Management (DSM) programs. This includes support for development, implementation and training, budgeting, and accounting functions related to these programs. By DSM, I mean both dispatchable (demand response or direct load control) and non-dispatchable (energy efficiency) types of programs.

Q. Please summarize your educational background and professional experience.

A. I have a Bachelor of Science degree in Education from Florida International University. In addition, I have received the following energy-related certifications; Certified Energy Manager (CEM) and Certified Demand Side Management Professional (CDSM), from the Association of Energy Engineers. Beyond the education and certifications mentioned above, I have over twenty five (25) years of experience in the electric industry. My experiences include roles in Customer Service, DSM Operations, Program Development and Analytical Services.

Q. Have you previously testified before the Florida Public Service Commission?

A. Yes. I have provided testimony to the Florida Public Service Commission ("FPSC" or the "Commission") on behalf of the Company on numerous occasions in consideration of the Company's DSM programs and Energy Conservation Cost Recovery clause filings.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to present, for Commission review and approval, Duke Energy's proposed numerical DSM goals for 2015-2024. DEF's proposed goals are based upon the analysis completed by the Company in concurrence with the agreement reached during a meeting conducted by Staff on June 17, 2013 with the utilities and interested parties. The parties agreed that the Technical Potential Study in the previous goals

proceeding, Docket Number 080408-EG for DEF, should be updated by each utility. The goals proposed below for DEF represent the output of the methodology agreed to by the parties. The proposed goals are presented for summer and winter peak demand as well as energy for both the residential and commercial/industrial market segments. In support of the proposed goals resulting from the updated Technical Potential Study, my testimony will detail the process DEF applied to establish the proposed cost-effective and reasonably-achievable goals in support of the requirements of Rule 25-17.0021 of the Florida Administrative Code (F.A.C.).

Q. What are Duke Energy Florida's proposed residential and commercial/industrial DSM goals for the 2015 through 2024 time period?

A. For the 2015-2024 period, DEF's proposed DSM goals for the residential and commercial/industrial sectors are shown below at the generator.

Duke Energy Florida's Proposed Goals 2015 - 2024			
Segment	Summer Peak MW	Winter Peak MW	GWh
Residential	174	369	123
Commercial/Industrial	85	51	72
Total	**259**	**419**	**195**

Values are at the Generator

Q. What is the scope of your testimony?

A. My testimony addresses nine main points:

1. Introduction and Qualifications;
2. General State of Energy Efficiency in Florida;
3. DEF's Proposed DSM Numerical Goals;
4. Overall Process to Develop the Proposed Goals;

5. Sensitivity Analyses;
6. Update on Residential Energy Management Program;
7. Supply Side Efficiencies;
8. Existing Solar Pilot Programs and Solar Set-Aside; and
9. Conclusions.

Q. Are you sponsoring any Exhibits to your testimony?

A. Yes, I have prepared or supervised the preparation of the following exhibits to my direct testimony:

1. Exhibit No. ___ (HG 1) Duke Energy Florida's Proposed Goals: Ten-Year Projections of DSM Savings segmented by the residential and commercial/industrial sectors;
2. Exhibit No. ___ (HG 2) Duke Energy Florida's estimated residential customer bill impact with 1,200 kWh reflecting projected achievable goal scenario amount of DSM savings using RIM and Participant tests;
3. Exhibit No. ___ (HG 3) Duke Energy Florida's estimated residential customer bill impact with 1,200 kWh reflecting projected achievable goal scenario amount of DSM savings using TRC and Participant tests;
4. Exhibit No. ___ (HG 4) Duke Energy Florida's Technical Potential Calculation Methodology;
5. Exhibit No. ___ (HG 5) Duke Energy Florida's projected total Technical potential amount of DSM;
6. Exhibit No. ___ (HG 6) Duke Energy Florida's Avoided Generation Assumptions;

7. Exhibit No. ___ (HG 7) Duke Energy Florida's projected economic potential using RIM;
8. Exhibit No. ___ (HG 8) Duke Energy Florida's projected economic potential using TRC;
9. Exhibit No. ___ (HG 9) Duke Energy Florida's measure list used for analysis;
10. Exhibit No. ___ (HG 10) Duke Energy Florida's list containing measures with less than a two-year payback passing RIM and Participant tests;
11. Exhibit No. ___ (HG 11) Duke Energy Florida's list containing measures with less than a two-year payback passing TRC and Participant tests;
12. Exhibit No. ___ (HG 12) Duke Energy Florida's projected achievable amount of DSM savings using RIM and Participant tests;
13. Exhibit No. ___ (HG 13) Duke Energy Florida's projected achievable amount of DSM savings using TRC and Participant tests;
14. Exhibit No. ___ (HG 14) Duke Energy Florida's Sensitivity Analysis - RIM and TRC DSM economic potential with regard to high fuel, low fuel, free ridership and future CO2 costs;
15. Exhibit No. ___ (HG 15) Duke Energy Florida's Solar Pilot Program summaries of achievements and expenditures;
16. Exhibit No. ___ (HG 16) Average residential and non-residential installed price of Solar by State;
17. Exhibit No. ___ (HG 17) Average Installed Price of Solar by Market Segment.

Q. Please summarize your testimony.

A. DEF has been offering energy efficiency programs and measures to its customers for more than 30 years. In addition, changes in building codes and standards and economic conditions have increased the amount of efficiency that customers are undertaking on their own, without incentive from the utility. These factors reduce the number of programs and measures that DEF can cost-effectively offer its customers. Accordingly, as demonstrated by my testimony, DEF's proposed numerical DSM goals for 2015 – 2024 are lower than those presented in previous goal-setting proceedings.

In support of the proposed DSM goals, my testimony will demonstrate that DEF utilized the agreed-upon methodology to establish the proposed reasonably achievable, cost-effective goals. DEF first updated the Technical Potential Study completed by Itron in the 2009 goal-setting proceeding. This update resulted in the removal, addition, and adjustment of several measures due to changes in building codes and standards, new available technologies, and marketplace changes. DEF then took the resulting measures from the Technical Potential Study and performed Economic Potential and Achievable Potential analyses. In the Economic Potential analysis, DEF accounted for free-ridership by screening out measures with a participant payback of less than two years without a utility incentive. In the Achievable Potential analysis, DEF considered administrative costs and participant incentives to evaluate the cost-effectiveness of the remaining measures. At this step DEF also applied a market penetration analysis to estimate the participation projections for each DSM measure.

The Company's proposed goals are based on a collection of measures and programs that pass both the Participant and Rate Impact Measure ("RIM") tests. Specifically, DEF is proposing a goal of 419 MW of winter peak demand reduction, 259 MW of summer peak demand reduction, and 195 GWh of energy reduction over the 2015-2024 time period. The proposed cost-effective DSM goals meet the requirements of Rule 25-17, Florida Administrative Code (F.A.C.). DEF proposes that the Commission set DSM goals using the Participant and RIM tests, because these tests are well-balanced and ensure that the perspectives of participants and all other ratepayers (including non-participants) are fairly considered.

Therefore, as supported by my testimony and the accompanying exhibits, DEF requests that the Commission adopt its proposed numeric goals in this proceeding.

GENERAL STATE OF ENERGY EFFICIENCY IN FLORIDA

Q. How long has DEF been offering demand side management and energy efficiency measures to customers in Florida?

A. DEF has a long and proud history of offering energy-reducing measures and programs to customers. DEF has demonstrated success in implementing cost-effective programs that have resulted in customer energy savings of over $1.2 billion dollars through 2011 and more than 15,000 GWh in energy consumption with demand savings of over 1645 MW effectively eliminating approximately 18 peaking power plants. These impressive savings have been achieved within a regulatory environment committed to establishing meaningful conservation goals that support the achievement of impressive

levels of savings without having a negative impact on all customers' rates. DEF has been a leader in the development and delivery of demand response and conservation programs that balance the interests of all Florida stakeholders. DEF currently offers a wide variety of cost-effective energy efficiency options with more than 100 measures providing multiple options for all customer segments.

Q. How do Duke Energy Florida's DSM accomplishments compare to other utilities in the nation?

A. In 2011, Florida Public Commission staff conducted an analysis requested by the FPSC to provide a comparison of demand-side management (DSM) program achievements of Florida's investor owned utilities (IOUs) to those of utilities of other states. This report: Florida Investor-Owned Utilities' Demand-Side Management Achievements Comparative Analysis can be found at: http://www.psc.state.fl.us/publications/pdf/electricgas/DSM_Peer_Report_201_01_20_final.pdf. Staff's analysis concluded that Florida IOUs had been successful in reducing peak demand calculated as the demand savings achievement as a percentage of peak demand. Staff's analysis also found that Florida IOUs compared favorably to peer utilities in energy savings. In addition, as noted by the University of Florida's Public Utility Research Centers' Evaluation of Florida's Energy Efficiency and Conservation Act ("PURC Report") found at: http://warrington.ufl.edu/centers/purc/docs/FEECA_FinalReport2012.pdf

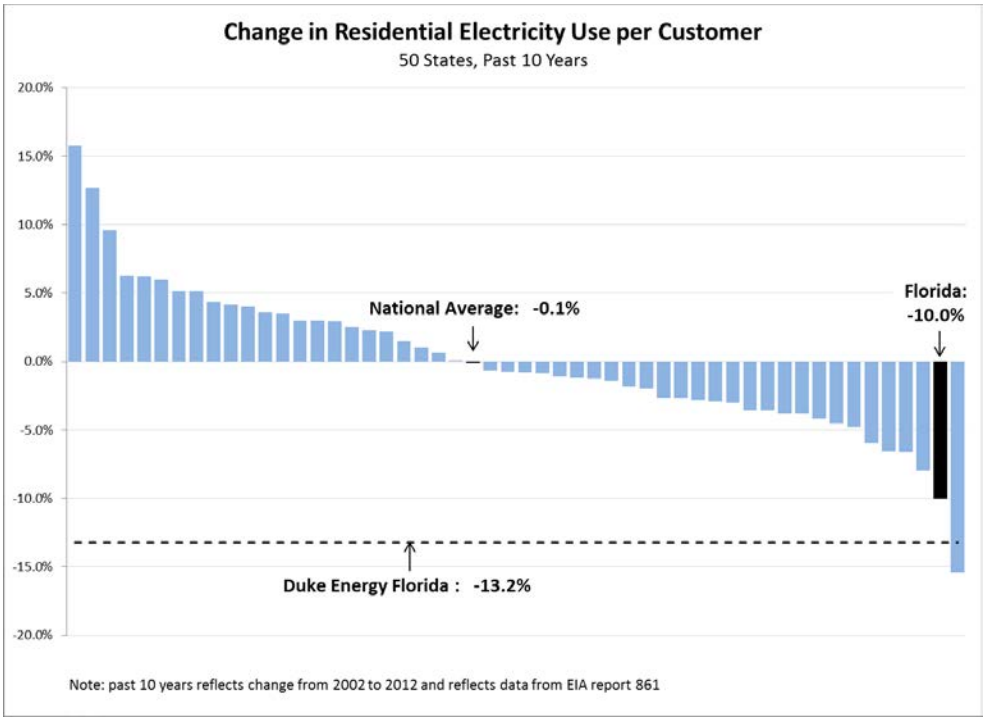
the cost-effectiveness of Florida's programs as a whole compares favorably with other states. Also, as included in the PURC Report on page 9 "based on the benchmarking results presented in Section 9.2.1, Florida's DSM program costs per unit of energy saved and capacity avoided are cost-effective compared with Florida's average costs for electricity, and are in line with costs in similarly situated states."

Duke Energy's success in implementing effective DSM Programs, along with the other Florida Investor Owned Utilities, has been facilitated by a regulatory environment that is supportive of the development and implementation of DSM programs that help customers manage their energy consumption while approving DSM programs that ensure the optimal balance of both program participants and non-participants.

Q. Does the fact that DEF has been offering energy efficiency programs for so long have an impact on the availability of future measures and programs?

A. Yes, it does. The longer a program or measure is offered, the more challenging it can be to achieve greater market penetration and customer participation; essentially market saturation can occur. Each incremental customer will require something more to be incented to participate in the program. Generally, these incremental participants require additional incentive payments and program administrative costs to market to potential participants. Unlike other jurisdictions that have only recently begun serious efforts to incent demand side management and energy efficiency, Florida has been actively engaged in these efforts for more than 30 years, and the

metaphorical vast majority of the “low hanging fruit” for efficiency and reduction has long been harvested . Market saturation in many program offerings is occurring as a result of this long-term commitment to energy efficiency options. DEF’s energy efficiency programs recognize the unique characteristics of the state’s energy consumption, and we have been successful in reducing customer demand and supporting the installation of long lasting equipment with reduction in energy consumption. The chart below demonstrates the change in residential per-customer usage over a ten year period.



You can see that the national average has seen a decrease of .1%, while Florida has seen a decrease of 10% - one of the biggest decreases in the country. DEF has seen an even larger decrease of 13.2%.

Q. Is anything else impacting the level of energy efficiency you see in this goal setting timeframe?

A. Yes. We have seen an increasing level of natural or "organic" efficiency and conservation that customers either make on their own or are required to do so given changing state and federal requirements. In its 2014 report to the legislature on the Florida Energy Efficiency and Conservation Act ("FEECA Report"), the Florida Public Service Commission recognized that "[c]onsumer actions to implement energy efficiency measures outside of utility programs as well as codes and efficiency standards, create a baseline for new program's cost effectiveness and reduce the amount of incremental energy available to count toward [utility] savings." See FEECA Report, found at http://www.psc.state.fl.us/publications/pdf/electricgas/FEECA2014.pdf, page 8. Said another way, the Commission has recognized that customers are increasingly engaging in efficiency and demand reduction measures outside of utility programs either because they are increasingly being required to by law or because the economics of doing so make sense to them without any intervention from the utility. (FEECA Report at 11). In a recent internal survey of its residential customers, DEF found 69% of its customers responded that they have taken actions to cut back on electricity use in their home to save money and/or control their electric bill.

Florida has been a leader in implementing construction codes to increase the required efficiency of new construction. Most recently, the Department of Energy (DOE) has proposed new federal appliance standards for heat pumps

that will increase the level of required efficiency, thereby limiting the available additional, voluntary efficiency that DEF can incent that exceeds federally required minimum efficiency standards. In its FEECA Report, the Commission provided a table (page 10) outlining the expected timeframe for modifications to a number of appliances where rulemaking had begun. Additionally, the Florida Building Commission will implement the 2013 Building Code changes effective December 31, 2014.

As an example of the impacts of code and appliance standards on the amount of demand and energy savings available through utility offered DSM programs, DEF observed more than a 25% decrease in winter demand and energy savings from 2012 to 2013 despite a similar marketing effort in each of those years to support efficiency program offerings. As a specific example, code changes resulted in the elimination of two popular programs that had been available in the Company's Home Energy Improvement Program: HVAC proper sizing and plenum sealing as those measures became mandatory to complete. Against this backdrop, since the last goals setting hearing in 2009, Florida and the United States have undergone a severe economic recession and today, all classes of customers have heightened their efforts to reduce their energy consumption and reduce the amount of their energy bill in any way they reasonably can.

Q. How successful has DEF's DSM goals achievement performance been for the 2010-2019 period?

A. DEF has been successful in implementing programs that support energy savings while minimizing rate impact. Below is a summary of accomplishments through 2013:

Residential Market Segment

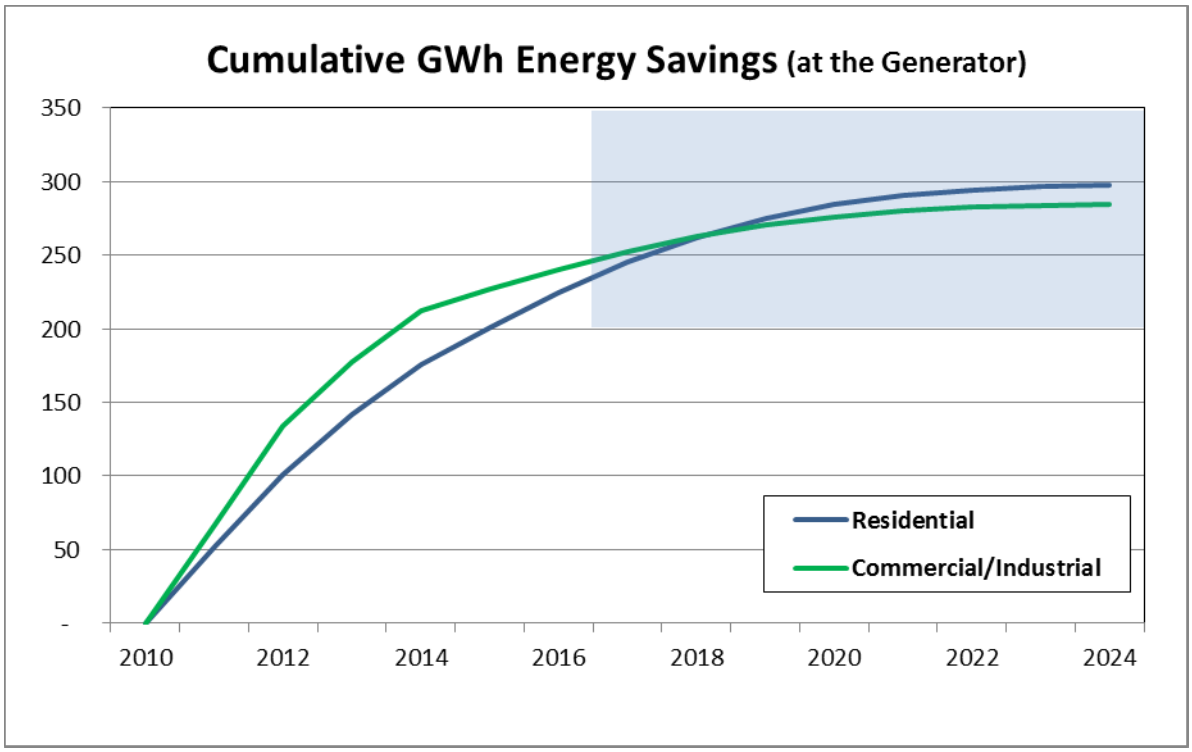
- 281 MW of winter peak demand reduction,
- 144 MW of summer peak demand reduction, and
- 200 GWh of energy reduction

Commercial/Industrial Market Segment

- 103 MW of winter peak demand reduction,
- 121 MW of summer peak demand reduction, and
- 243 GWh of energy reduction.

The results above include the impact of customers' heightened awareness of efficiency, fuel prices, and changes in federal and state codes and appliance standards. Although the Company has continued aggressive efforts to implement DSM programs, the trend of energy savings attributed to our conservation programs is reflecting a decrease related to the continued implementation of new codes and standards, customer behavior and the long-term success of DEF's DSM programs. The potential for future DSM program implementations also reflects consideration of the Company's most recent

planning process. Those trends and proposed DSM goals reflect the amount of cost-effective DSM included in the Company's DSM goals proposal and are depicted in the graph below.



DEF has aggressively sought achievement of its goals by continuously developing innovative program offerings to our residential and commercial/industrial customers while providing a program mix that benefits all customers. This strategy has resulted in avoiding the need for generation while meeting the efficiency needs of our customers. However, as explained above, the programs and measures that can continue to be offered by DEF are shrinking substantially.

DEF'S PROPOSED DSM NUMERICAL GOALS

Q. What cost-effectiveness test should the Commission use to set DSM goals for Duke Energy Florida?

A. Consistent with the past stated goals of FEECA, the Participant and Rate Impact Measure (RIM) tests should be used in Florida to set DSM goals because they are the only tests that reasonably balance the interests of all stakeholders. Using RIM ensures that non-participating customers will not subsidize participating customers, and it reasonably limits overall rates to our customers. As an example of this difference, DEF's proposed RIM portfolio represents an average of $22.5 million per year lower cost to customers as compared to a TRC portfolio, or a total of $112 million over the first five years of the planning period.

In dealing with balancing the need for utility sponsored energy efficiency and demand side management programs, the FPSC has historically used a well-balanced view of the prevailing cost effectiveness tests to ensure that the benefits and costs of such programs are considered from the perspective of participants as well as ratepayers as a whole. The Commission has also deployed measures to prevent "free riders" from taking advantage of incentives for programs that they would do even without incentive payments.

Historically, the FPSC has given great weight to the Participant and Rate Impact Measurement tests for cost effectiveness because in conjunction with each other, these two tests capture all of the relevant costs and benefits that should be evaluated when considering an efficiency or load reduction program. FEECA Report at 16, Table 7.

Unlike the Total Resource Cost test that effectively ignores incentive costs and the impact of decreased utility revenues caused by DSM and EE programs, the RIM test "ensures that all customer rates are lower than they otherwise would have been without the DSM programs." FEECA Report at 15. In fact, because of the extreme rate impact and burden that the sole use of the Enhanced Total Resource Cost test would have on customer bills, the Commission allowed FPL and DEF to continue their existing RIM-based programs in 2011 for purposes of FEECA compliance because those programs would "produce significant energy savings while minimizing the overall increase in the bills of all ratepayers." FEECA Report at 18.

Q. What are the numerical goals that you are proposing to the Commission for DEF during the period of 2015-2024 in this proceeding?

A. Below are the numerical goals (at the generator) being proposed to the Commission for DEF. The proposed goals are based on a collection of measures and programs that pass both the Participant and RIM tests.

- 419 MW of winter peak demand reduction
- 259 MW of summer peak demand reduction
- 195 GWh of energy reduction

Q. How are Duke Energy Florida's DSM proposed goals for the upcoming period of 2015-2024 allocated for the residential and commercial/industrial segments?

A. The following table summarizes DEF's proposed residential and commercial ten-year cumulative goals at the generator.

Duke Energy Florida's Proposed Goals 2015 - 2024			
	Summer Peak MW	Winter Peak MW	GWh
Residential	174	369	123
Commercial / Industrial	85	51	72
Total	**259**	**419**	**195**

Values are at the Generator

Q. Did you produce ten-year projections of DSM savings as a result of this process?

A. Yes. My Exhibit No. ___ (HG 1), provides the annual and cumulative amounts for the residential and commercial/industrial segments for the 2015 – 2024 period.

Q. What would DEF's goals be during the period of 2015-2024 if the Commission utilized the TRC test?

A. Below are the numerical goals (at the generator) based on the TRC test.

- 458 MW of winter peak demand reduction
- 335 MW of summer peak demand reduction
- 499 GWh of energy reduction

Q. For Duke Energy Florida, what are the estimated 2015-2024 average residential customer bill impacts with 1,200 kWh/month for the projected RIM achievable portfolio versus the projected TRC achievable portfolio?

A. Please see Exhibits 2 and 3 for the estimated 2015-2024 average residential customer bill impact for the proposed RIM and TRC portfolios at 1,200 kWh/month.

To develop the 1,200 kWh/month annual residential bill impacts for the Company's proposed RIM and TRC portfolios for the 2015-2024 period the following approach was applied. The forecasted bill impact was based upon Duke Energy's forecast of energy sales and revenue requirements consistent with its most recent integrated resource planning process. The forecast also reflects future changes in the fuel adjustment, capacity cost recovery (CCR), energy conservation cost recovery (ECCR) and environmental cost recovery (ECRC) clauses. The forecast reflects the level of estimated DSM demand and energy savings in the RIM achievable portfolio. These impacts include revenue requirements associated with changes in supply resources necessary to maintain minimum reserve margins over the forecast period as well as changes in fuel and variable O&M associated with change in energy. The forecast of bills was further adjusted to reflect DSM program costs necessary to support the level of savings forecasted in the RIM achievable portfolio, including advertising costs, administrative costs and incentive payments for energy efficiency programs and incentive payments associated with load control programs.

It is important to note that the difference in the average residential bill impact between achievable RIM and TRC portfolios is for one customer only and does not reflect the more than $22 million dollar per year difference between these portfolios over the first five years of the planning period. The estimated expenditures to support the RIM portfolio for the 2015 – 2024 period is $1.1

billion. The estimated expenditure required to support the TRC portfolio for the 2015 – 2024 period is $1.26 billion. This represents an additional amount of $161 million to implement the TRC portfolio. Additionally, the RIM portfolio is based on measures that are cost-effective for both participants and non-participants while the additional costs for the TRC portfolio will result in non-participating customers subsidizing the program participants. The RIM portfolio represents lower customer costs, no cross-subsidization and the continuation of program offerings that benefit ALL customer segments.

Q. The proposed numeric goals for DEF appear lower than previous goal-setting proceedings. What is driving this decrease?

A. In 2014, we find our residential use per customer continuing to decline resulting in modest growth projections and are forecasting a long term continuation of consistently low prices for natural gas. Even viewing the TRC test in complete isolation a large number of the programs evaluated fail to be cost-effective.

As mentioned before, and as succinctly stated by the Commission "[i]ncreases in federal efficiency standards, independent conservation efforts by consumers, and general conservation practices" have presented an increased challenge for utilities to design and meet cost-effective demand side management and efficiency goals. FEECA Report at 11.

For these and other reasons, most of our energy efficiency and demand side management programs in this goals setting proceeding fail the Commission's

mandated cost effectiveness tests and we continue to struggle in finding new and effective programs that customers are not already doing themselves.

Q. Given this relatively low portfolio, shouldn't the Commission use the TRC test, which yields a higher goal scenario, to ensure that Florida continues making energy efficiency strides?

A. No. The Commission should, as it always has, review all relevant information and make the decision that most fairly balances all stakeholder interests. These results are not "good" or "bad", "right" or "wrong." Instead, the results are simply the output of an agreed upon transparent process and, as the Commission's rules dictates, must be reviewed objectively, in the context of all impacted customers and stakeholders.

Five years from now, when we engage in this process to set new goals in 2019, the world may look different, and we may have different results then. Additionally, DEF is committed to continuing to evaluate new programs that if cost-effective, could be presented to the Commission at any time.

OVERALL PROCESS TO DEVELOP THE PROPOSED GOALS

Q. What was the process used to determine the DSM numeric goal for the 2015 - 2024 period for Duke Energy Florida?

A. DEF first updated the 2009 Technical Potential Study, then performed Economic Potential and Achievable Potential analyses on the resulting measures, and finally used the results to determine the cost effective

collection of measures and programs for inclusion in the proposed goal scenario. More details on each step are included below.

Q. Describe how the Company's technical potential study has been updated and modified to determine the 2014 Technical Potential for use during the 2015 - 2024 period.

A. In connection with the last DSM goal-setting proceeding for the State of Florida (Docket 080408), the FEECA utilities (DEF, FPL, TECO, Gulf Power, OUC, and JEA) formed a Collaborative and worked with an independent company, Itron, Inc., to develop a comprehensive evaluation of the technical potential for energy and peak demand savings from energy efficiency (EE), demand response (DR), and customer-scale photovoltaics (PV). This resulted in the 2009 Technical Potential (TP) Study, which identified the theoretical limit of electric peak demand (MW) and energy (GWh) reductions. The TP assumes every measure is installed everywhere it could be installed, regardless of cost, customer acceptance, or any other real-world constraints.

For purposes of the 2014 goal-setting proceeding, the FEECA utilities, Commission Staff, and other interested parties determined that it would be more efficient to update the 2009 TP rather than commission a net-new study. Accordingly, DEF went through a series of steps to update the 2009 TP, the result being the 2014 TP study. DEF first reviewed the list of 257 unique measures contained in the 2009 TP to remove Baseline Measures which were rendered obsolete by changes in Florida Building Codes and Federal equipment manufacturing standards. This resulted in the removal of 6 unique measures, 5, residential and 1 commercial, due to codes and standards.

Baseline Measures are measures which represent the minimum demand and energy impacts for a technology (e.g. 14 SEER for air-conditioning as prescribed by 2015 codes and standards). The Baseline Measure serves as the basis for calculating the incremental impacts for related Dependent Measures. The Florida Building Code was amended to increase the required minimum standards for various technologies, such that new construction must meet a standard that was previously included as a measure upon which to incentivize. Those Baseline Measures had to be removed from the 2009 TP list to ensure that only incremental new impacts would be included as potential for additional energy and demand reductions. As part of this initial step, DEF also established new Baseline Measures, where appropriate, to replace those that had become obsolete. Finally, DEF reduced the demand and energy savings assumptions of all Dependent Measures related to the new Baseline Measure. A Dependent Measure is a measure related to a Baseline Measure with demand and energy impact values that are incremental to its Baseline Measure (e.g. a 15 SEER air-conditioner vs. the 14 SEER Baseline Measure).

The next step to updating the TP involved adding new measures that were not previously included in the 2009 TP. DEF reviewed the list and added commercially-viable Competing and Complementary Measures. A Competing Measure is a measure which “competes” or displaces another similar measure from being implemented. For example, high efficiency air-conditioners with SEERs of 15 or 17 could not both be installed to serve the same cooling load. A Complementary Measure is a measure that can add incremental demand and energy impacts independent of other measures, like

ceiling insulation. The size of these measures' incremental impacts can be affected by other measures. For example, the impact of ceiling insulation can be affected by the level of air-conditioning efficiency. DEF then calculated the respective demand and energy impacts of those new measures relative to the appropriate Baseline Measure. This resulted in the addition of 27 new measures, 7 residential, 15 commercial and 5 industrial.

DEF's final step in updating the 2009 TP was adjusting for marketplace changes. Specifically, DEF incorporated the effect of its overall service area growth from 2007 through 2012. DEF also reduced its overall demand and energy potential to reflect the impact of its DSM programs from 2007 through 2012. The result of these three steps was the 2014 TP. The total number of unique measures analyzed was 278 for the 2014 TP study. A pictorial depiction of the process used to update and develop the 2014 Technical Potential can be found in Exhibit No. ___ (HG 4). Additionally, Exhibit No.___ (HG 5) provides a list of measures evaluated in the Technical Potential Study update.

Q. What measures were eliminated or added as compared to the 2009 Technical Potential Study?

A. Please refer to Exhibit No. ___ (HG 5), which is a list of those measures added to and eliminated from the 2014 TP as compared to the 2009 TP.

Q. Please identify the projected technical potential for Duke Energy Florida.

A. The table below shows the results of the 2014 technical potential analysis for DEF.

Energy Efficiency									
	System Total			Residential			Commercial/Industrial		
	GWH	Summer MW	Winter MW	GWH	Summer MW	Winter MW	GWH	Summer MW	Winter MW
ITRON Original Technical Potential	12,351	2,943	1,897	8,232	2,140	1,479	4,119	803	418
Adjusted for Standard/Code Changes	10,523	2,473	1,630	6,899	1,803	1,227	3,624	670	403
Adjusted for New Measure Additions	12,458	2,837	1,755	8,106	1,909	1,291	4,352	928	464
Adjusted for Customer Growth	12,595	2,868	1,773	8,195	1,930	1,305	4,400	938	468
Adjusted for DSM Accomplishments	12,073	2,651	1,511	7,973	1,814	1,111	4,100	838	400
2014 Technical Potential	**12,073**	**2,651**	**1,511**	**7,973**	**1,814**	**1,111**	**4,100**	**838**	**400**

The total theoretical energy efficiency potential for electric energy savings for DEF for the period 2015 through 2024 is estimated to be approximately 12,073 GWh. The total theoretical potential for winter peak demand savings is 1,511 MW, and the total theoretical potential for summer peak demand savings is 2,651 MW.

Q. Has DEF provided an adequate assessment of the full technical potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems?

A. Yes, as demonstrated in the preceding testimony and exhibits.

Q. Once the technical potential was established, what was DEF's next step?

A. DEF then began its Resource Planning process and developed its Base Case using the following assumptions: a two-year free-ridership exclusion period; no costs for carbon; and a base case for fuel prices. The resource planning

process begins by establishing DEF's supply side resource plan for the years 2015-2024. Consistent with the resource planning process, the supply side resource plan is developed with the assumption that no new DSM will be installed after 2014. This activity allows the Company to develop a case for evaluation of DSM program cost-effectiveness. This process identifies a portfolio of potential units which would be required to meet load and reserve margin requirements in that period. The next unit in this portfolio that has not been committed is deemed to be the avoided unit for purposes of evaluating the cost effectiveness of potential DSM programs. Please see Exhibit No.__ (HG 6) for Duke Energy Florida's avoided generation assumptions.

Q. Please describe how the Base Case was developed.

A. DEF employs an Integrated Resource Planning (IRP) process to determine the most cost-effective mix of supply- and demand-side alternatives that will reliably satisfy our customers' future demand and energy needs. DEF's IRP process incorporates state-of-the-art computer models used to evaluate a wide range of future generation alternatives and cost-effective conservation and dispatchable demand-side management programs on a consistent and integrated basis.

The process begins with the development of various forecasts, including demand and energy, fuel prices, and economic assumptions. Future supply- and demand-side resource alternatives are identified and extensive cost and operating data are collected to enable these to be modeled in detail. These

alternatives are optimized together to determine the most cost-effective plan for DEF to pursue.

Potential supply-side resources are screened to determine those that are the most cost-effective. Data used for the screening analysis is compiled from various industry sources and DEF's experiences. The wide range of resource options is pre-screened to set aside those that do not warrant a detailed cost-effectiveness analysis. Typical screening criteria are costs, fuel source, technology maturity, environmental parameters, and overall resource feasibility.

Economic evaluation of generation alternatives is performed using the Strategist® optimization program. This optimization tool evaluates revenue requirements for specific resource plans generated from multiple combinations of future resource additions that meet system reliability criteria and other system constraints. All resource plans are then ranked by system revenue requirements.

At this point, a base case is selected without future DSM programs. This base case is utilized for the screening of DSM options and alternatives. Like supply-side resources, data for large numbers of potential demand-side resources are also collected. These resources are pre-screened to eliminate those alternatives that are still in research and development, addressed by other regulations (e.g. building code), or not applicable to DEF's customers. Strategist® is updated with cost data and load impact parameters for each potential DSM measure to be evaluated.

The Base Optimal Supply-Side Plan (no new DSM) is used to establish avoidable units for screening future demand-side resources. Each future demand-side alternative is individually tested in this plan over the study period

to determine the benefit or detriment that the addition of this demand-side resource provides to the overall system. Strategist® calculates the benefits and costs for each demand-side measure evaluated and reports the appropriate ratios for the Rate Impact Measure (RIM), the Total Resource Cost Test (TRC), and the Participant Test.

The cost-effective generation alternatives and the demand-side portfolios developed in the screening process can then be optimized together to formulate integrated optimal plans. The optimization program considers all possible future combinations of supply- and demand-side alternatives that meet the Company's reliability criteria in each year of the study period and reports those that provide both flexibility and reasonable revenue requirements (rates) for DEF's ratepayers.

Forecasts of key input parameters to the models is one of the most important activities in developing a valid base case for resource planning.

The base case fuel price forecast was developed using short-term and long-term spot market price projections from industry-recognized sources. The base cost for coal is based on the existing contracts and spot market coal prices and transportation arrangements between DEF and its various suppliers. For the longer term, the prices are based on long-term forecasts reflective of expected market conditions. Oil and natural gas prices are estimated based on current and expected contracts and spot purchase arrangements as well as near-term and long-term market forecasts. Oil and natural gas commodity prices are driven primarily by open market forces of supply and demand. Natural gas firm transportation cost is determined primarily by pipeline tariff rates. DEF works in

partnership with EVA, a well-respected energy market analyst to develop comprehensive long range fuel price forecasts that incorporate forecasts of future energy development, potential environmental regulations, and energy uses across the whole economy.

Accurate forecasts of long-range electric energy consumption, customer growth, and peak demand are essential elements in electric utility planning. Accurate projections of a utility's future load growth require a forecasting methodology with the ability to account for a variety of factors influencing electric consumption over the planning horizon. DEF's forecasting framework utilizes a set of econometric models as well as the Itron statistically adjusted end-use (SAE) approach to achieve this end.

The residential and commercial energy projections incorporate Itron's statistically adjusted end-use (SAE) approach while other classes use customer class-specific econometric models. These models are expressly designed to capture class-specific variation over time. By modeling customer growth and average energy usage individually, subtle changes in existing customer usage are better captured as well as growth from new customers. Peak demand models are projected on a disaggregated basis as well. This allows for appropriate handling of individual assumptions in the areas of wholesale contracts, load management, interruptible service and changes in self-service generation capacity.

In the retail jurisdiction, customer class models have been specified showing a historical relationship to weather and economic/demographic indicators using monthly data for sales models and annual data for customer models. Sales are

regressed against "driver" variables that best explain monthly fluctuations over the historical sample period. Forecasts of these input variables are either derived internally or come from a review of the latest projections made by several independent forecasting concerns. The external sources of data include Moody's Analytics and the University of Florida's BEBR. Internal company forecasts are used for projections of electricity price, weather conditions, and the length of the billing month. Normal weather, which is assumed throughout the forecast horizon, is based on a twenty-year modified average of heating and cooling degree-days by month as measured at several weather stations throughout Florida for energy projections and temperatures around the hour of peak for the firm retail demand forecast.

The forecast of peak demand also employs a disaggregated econometric methodology. For seasonal (winter and summer) peak demands, as well as each month of the year, DEF's coincident system peak is separated into five major components. These components consist of potential firm retail load, conservation and load management program capability, wholesale demand, company use demand, and interruptible demand.

Q. Once the avoided unit information is established, what was the next step in DEF's process?

A. The next step in DEF's process is to establish its economic potential. DEF considered the DSM measures identified as being technically feasible in DEF's service territory and began the application of several steps described below to determine economic potential. The first step in the determination of economic potential was to evaluate and account for free-ridership by

screening out any measure that had a participant payback of less than two years without a utility incentive. As part of its economic potential analysis, DEF also performed two payback sensitivities that considered payback periods of less than one-year and less than three-years.

The next step toward determining economic potential involved performing cost-effectiveness analyses using both the RIM and TRC tests. Please see Exhibit No.__ (HG 7) and Exhibit No. ___ (HG 8) respectively. For this analysis, economic potential assumed the tests would be calculated without any program costs or participant incentives. Thus, for the RIM test, lost revenue was the only variable considered on the cost side of the equation. For TRC, only the incremental customer cost was used on the cost side of the equation. On the benefit side, the RIM and TRC tests included the same set of variables: the avoided costs of generation, transmission and distribution as well as fuel and O&M.

The comprehensive measure list that DEF analyzed as part of this process is contained in Exhibit No. ___ (HG 9). The lists of the measures reflecting the two-year free-ridership sensitivity for the RIM and TRC portfolios are included as Exhibit No. ___ (HG 10) and Exhibit No. ___ (HG 11).

Q. Upon determination of DEF's economic potential, what was the next step in DEF's process?

A. The first step in the determination of achievable potential was to apply administrative costs and participant incentives to the economic potential measures. Cost-effectiveness was then re-evaluated under both RIM and TRC with the inclusion of administrative costs on the cost side of both the

RIM and TRC equations, and the addition of participant incentives on the cost side of the RIM equation. DEF developed administrative costs from its actual expenditures in this area. Participant incentives for RIM were developed to achieve either a two-year payback or a RIM benefit-cost ratio of 1.0. For TRC, participant incentives were calculated to result in a two year payback. All measures that passed this next level of RIM and TRC screening were used to develop achievable potential.

Q. With respect to your achievable numeric DSM goal, would you please describe any market penetration analysis that you incorporated?

A. Yes. The market penetration analysis used to estimate the participation projections for each DSM measure involved a mix of approaches. Actual historical data and expert judgment from over thirty years of implementing successful DSM programs by the Company provided the basis for projecting participation in many of the DSM measures included in Duke Energy, Florida's programs. Participation was determined based upon varying forces such as market growth, economic strength, expected code and standards implementations, etc.

For those measures where DEF had little or no experience, Itron applicable participation was used to represent the overall size of the applicable market for each measure. Applicable market size, however, does not account for the lack of customer awareness and acceptance which can cause actual participation rates to fall well below total market size. To recognize these factors, DEF estimated and applied the payback for each measure to a set of payback-acceptance curves (one for residential and one for

commercial/industrial) in order to determine maximum expected participation rates by measure over the ten-year forecast period. Multiplying this maximum participation rate by the Itron applicable households then yielded an estimate of the total ten-year participation for each measure. Finally, two diffusion curves, one for relatively new measures and one for mature measures, were used to distribute the ten-year total participations to each individual year of the 2015-2024 forecast period.

Q. Please identify the 2015-2024 projected DSM economic potential and associated measures for DEF based on the RIM cost-effectiveness test.

A. The following total 2015-2024 RIM-based economic potential savings were associated with 231 unique energy efficiency measures that passed the RIM test and had a customer payback of at least two-years.

- 3,999 MW of winter peak demand reduction
- 3,856 MW of summer peak demand reduction
- 6,767 GWh of energy reduction.

Q. Please identify the 2015-2024 projected DSM economic potential and associated measures for DEF based on the TRC cost-effectiveness test.

A. The following total 2015-2024 TRC-based economic potential savings were associated with 763 unique energy efficiency measures that passed the TRC test and had a customer payback of at least two-years.

- 2,992 MW of winter peak demand reduction
- 3,119 MW of summer peak demand reduction
- 8,059 GWh of energy reduction.

Q. Please identify the 2015-2024 projected DSM achievable potential and associated measures for DEF based on the RIM and Participant cost-effectiveness tests.

A. The following total 2015-2024 RIM-based achievable potential savings were associated with 113 unique energy efficiency and 4 demand response measures that passed the RIM test and had a customer payback of at least two-years.

- 419 MW of winter peak demand reduction
- 259 MW of summer peak demand reduction
- 195 GWh of energy reduction

Please refer to Exhibit No. __ (HG 12) for the achievable potential and associated measure names for DEF based on the RIM and Participant cost-effectiveness tests.

Q. Please identify the 2015-2024 projected DSM achievable potential and associated measures for DEF based on the TRC and Participant cost effectiveness tests.

A. The following total 2015-2024 TRC-based achievable potential savings were associated with 528 unique energy efficiency and 4 demand response measures that passed the TRC test and had a customer payback of at least two-years.

- 458 MW of winter peak demand reduction
- 335 MW of summer peak demand reduction
- 499 GWh of energy reduction.

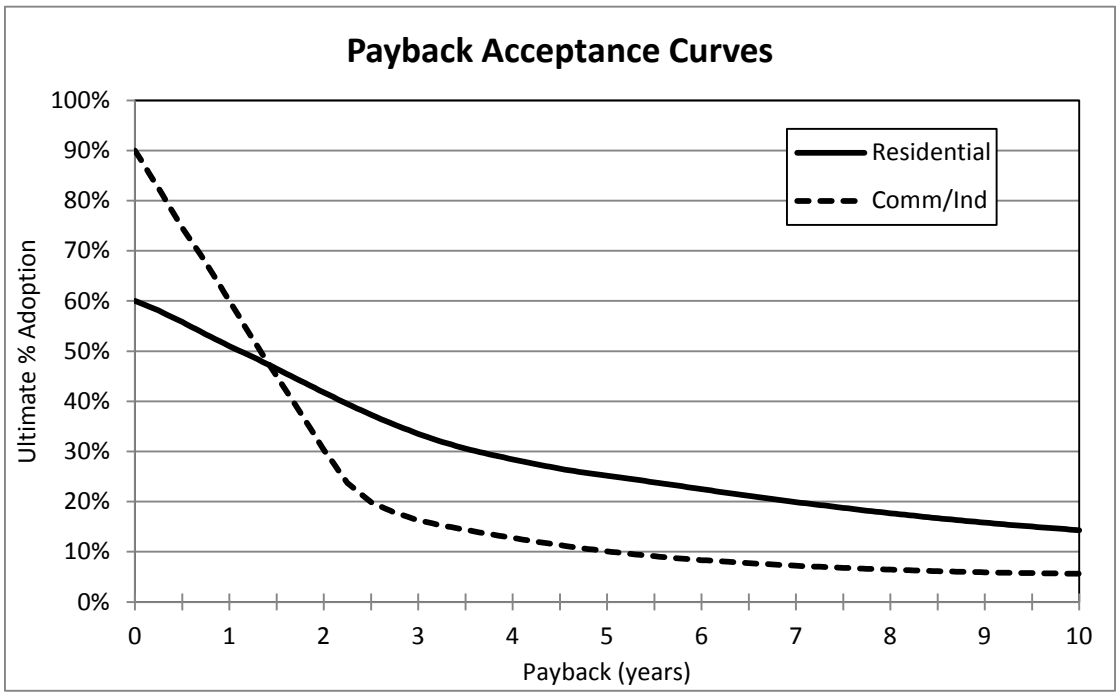
Please refer to Exhibit No. __ (HG 13) for the achievable potential and associated measure names for DEF based on the TRC and Participant cost-effectiveness tests.

Q. Why did DEF remove measures based on a free-ridership exclusion period?

A. In the context of DSM programs, a free rider is someone who did not need an incentive to adopt an energy efficiency measure, but who participates in and receives the program incentive anyway. Because it is difficult to determine whether a participant would have participated even without the incentive, using a two-year payback period is a reasonable proxy. If a measure would pay for itself in two years or less (in energy savings), then DEF assumes that the participant should and would have their own economic rationale for participating such that they would not need the incentive offered by DEF. By excluding these measures, DEF is removing the possibility of free riders.

Q. Why did DEF select two years for the base case free-ridership exclusion period, as opposed to some other time period?

A. A two-year payback period is a reasonable time period in which to limit measures and assume that customers will do them on their own. This time period has been recognized by the Commission in past proceedings as a reasonable proxy to eliminate free riders. Since 1991, a payback of two years or less has been recognized by the Commission as an appropriate threshold to reduce free ridership and maximize cost-effectiveness. The goal of rebates for DSM programs has been to help offset high capital cost measures and reduce paybacks to motivate customer actions. There is a variety of adoption curves that are applied throughout the industry to demonstrate customer adoption in response to payback levels. The graph below shows the residential and commercial/industrial payback-acceptance curves used by DEF in this docket.



As seen in the next section, DEF also developed sensitivities including shorter (one-year) and longer (three-year) payback measures. The concept of eliminating measures that pay for themselves is a valid one, but the specific time period to use is a policy decision.

Q. Has DEF provided an adequate assessment of the achievable potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems?

A. Yes, as demonstrated in the preceding testimony and exhibits.

SENSITIVITY ANALYSES

Q. Did the Company perform any sensitivity analyses with respect to the economic potential for residential and commercial/industrial winter and summer demand and annual energy savings?

A. Yes. Per the Order Establishing Procedure, DEF performed the following sensitivity analyses on the RIM and TRC economic potential cases and considered the following components:

- RIM based evaluation assuming higher fuel prices;
- TRC based evaluation assuming higher fuel prices;
- RIM based evaluation assuming lower fuel prices;
- TRC based evaluation assuming lower fuel prices;
- RIM based evaluation assuming one-year free-ridership exclusion period;
- TRC based evaluation assuming one-year free-ridership exclusion period;

- RIM based evaluation assuming three-year free-ridership exclusion period; and
- TRC based evaluation assuming three-year free-ridership exclusion period.

Please see Exhibit No.__ (HG 14) for sensitivity analysis.

Q. Please describe how the sensitivities were developed and compared to the Base Case.

A. Economic potential was estimated for each of the sensitivities using the same measure list and measure data that was used in the Base Case analysis.

The one-year and three-year payback sensitivities also used the same Strategist® model that was used for the Base Case. The only change from the Base Case analysis was a revision to the two-year payback threshold. As a result, economic potential for the one-year payback sensitivity only includes savings for those measures with a one-year payback or greater, while economic potential for the three-year payback sensitivity only includes savings for those measures with a payback greater than or equal to three years.

For each of the low and high fuel price sensitivities, the Base Case Strategist® model was revised to incorporate the appropriate low or high fuel price projections, as well as the corresponding low or high electric price projections, in place of the Base Case assumptions. Each measure was then evaluated for RIM and TRC based on the low fuel Strategist® and high fuel Strategist® models. Economic potential for the low and high fuel sensitivities also applied

the same less than two-year payback criteria that was used in the Base Case to screen measures for free-riders.

Q. Please generally comment on the fuel price sensitivities and explain what, if any, impact they have on the cost-effectiveness of the measures and programs as compared to the Base Case.

A. Different fuel prices affect avoided production (fuel and O&M) costs, which appears on the benefits side of the equation for both the RIM and TRC tests. All other things being equal, higher fuel prices yield higher avoided cost benefits and lower fuel prices yield lower avoided cost benefits.

The effect of different fuel prices will affect the RIM test results differently than the TRC test due to the cost sides of the RIM and TRC equations being different. As noted previously, the only cost in the RIM test for economic potential is lost revenue, while the only cost in the TRC test for economic potential is incremental customer cost. Since lost revenue is calculated based on an average total electric price projection, the different fuel price sensitivities also affect the cost side of the RIM equation and in the same direction that they affect the benefits side. That is, higher fuel costs lead to higher RIM benefits as well as higher RIM costs. The final RIM cost-effectiveness for economic potential may be higher or lower than the Base Case depending upon which side of the equation increases the most on an NPV basis over the life of the measure.

For TRC, different fuel prices do not impact incremental customer costs and, therefore, do not affect the cost side of the TRC test. Higher fuel prices

directly lead to higher TRC results for economic potential relative to the Base Case and lower fuel prices lead to lower TRC economic potential results relative to the Base Case.

Q. Regarding the sensitivities of the length of the free-ridership payback period, what impact, if any, does changing the payback period have on the measures and programs that are cost-effective, as compared to the Base Case?

A. The shorter the free-ridership payback period, the more measures are included in the economic and achievable potential estimates, all other thing being equal. For example, the one-year payback sensitivity allows more measures to pass the free-ridership screen than the two-year payback threshold used in the Base Case. The higher three-year payback sensitivity would screen out more measures from advancing to economic and achievable potential relative to the Base Case.

Q. Did DEF perform any other sensitivity analyses?

A. Yes, for informational purposes, DEF performed an analysis that included the impact of an assumed carbon dioxide emissions cost to the RIM and TRC evaluation. This is akin to the “enhanced” cost effectiveness tests that the Commission utilized in 2009. The results of that analysis are provided in Exhibit No. __ (HG 14).

Q. How did DEF develop the fuel forecasts and carbon emissions cost for use in this sensitivity analysis?

A. DEF used the same fuel forecasts used in the Base Case (and explained above) for this sensitivity analysis. For the carbon cost, DEF analyzed the potential for future carbon legislation and monetized the impact of avoiding future carbon costs through demand side management and energy efficiency.

DEF's long term natural gas forecast is based on third party forecasts provided by EVA. EVA is a nationally recognized energy consultancy based in Arlington, VA. The forecast is consistent with their "2012 Fuelcast". The first three years of DEF's natural gas forecast is based on the NYMEX Forward Price curve. DEF's oil forecast is developed based on the NYMEX Forward Price curve for first three years. The long term oil forecast is based on third party forecast provided by EVA. DEF's coal price forecast for coal supplied to Crystal River units 4 and 5 is developed based on the forward market price for the first three years and based on a third party forecast prepared by Energy Ventures Analysis (EVA) for the long term. In the specific case of coal to be burned at Crystal River Units 1 and 2 during the compliance period, DEF sought coal price quotations from a variety of mines identified as potential sources for the compliance coal. These quotations were used to generate a consensus price forecast for the period 2016 – 2020. High and low fuel price forecasts are based on a range developed through the review of seven to ten alternative fuel forecasts developed by other consultants and government agencies.

DEF 's forecast of potential carbon emissions prices is based on analysis of past potential legislation creating a market price for carbon. Start dates for

carbon price implementation have been extended to allow for implementation following a future election cycle.

Q. What did the carbon sensitivity analysis show?

A. The future of carbon regulation and how to value it now has become more and more speculative. Accordingly, the "RIM" and "TRC" cost effectiveness sensitivity analysis with carbon considerations do not significantly increase the amount of programs that a utility could offer if those were used as the sole view of cost effectiveness. DEF will continue to monitor carbon regulation and will be prepared to address any changes in the next goal proceeding in five years.

Q. Does Duke Energy Florida's proposed DSM numeric goal adequately reflect the costs imposed by state and federal regulations on the emission of greenhouse gases?

A. Yes, as explained above, given the uncertain future of carbon regulation, there is no need to include a specific cost for carbon emissions in the numeric goals for this proceeding.

UPDATE ON RESIDENTIAL ENERGY MANAGEMENT PROGRAM

Q. Please provide a status on the Company's Residential Energy Management program.

A. DEF's Energy Management (EnergyWise) program is a voluntary program that allows DEF to reduce system demand by temporarily interrupting selected customer appliances for specified periods of time. In connection

with DEF's last goal setting docket, and its ongoing ECCR clause filings, DEF informed the Commission that the load control switches were aging and that infrastructure maintenance and system upgrades were necessary to ensure the availability of the existing 700 MW of direct load capacity. One of the challenges facing the existing system was the increasing obsolescence of the technology, which made it difficult to locate replacement parts. After the merger, DEF learned that some of the needed parts were available from other regulated affiliates in the new combined company. DEF has been able to leverage those spare parts in inventory to continue the expected life of the load control switches. At the same time, technology in this area has been evolving at an accelerated rate. DEF originally intended to replace the one-way communication switches with a next generation two-way communications system. DEF began studying the available technologies and chose to develop a two-way system based on a proprietary network to replace the existing paging system. DEF's current system was designed in 1981 and leveraged for approximately 30 years. As DEF began to implement its strategy, the state of technology evolved in two key ways.

First, broadband and cellular access increased at a substantial rate and at a reduced cost. The number of customers with broadband in their homes has increased significantly. The same phenomena occurred with cellular towers. With more and more customers requiring continual access to cellular service than ever before, the cost of cellular has decreased. This is relevant because it may provide an alternative approach to load control switches communications between the customer and DEF. To maintain two-way communication, DEF had planned to develop a proprietary network with a

vendor over which the load control switches would communicate and operate. Now, however, with the proliferation of broadband and cellular, it may be possible to utilize existing networks to facilitate the same communication. This was not possible several years ago, because there were too many parts of DEF's service area with insufficient cellular and broadband availability.

The second technological development has been the introduction of customer-owned and operated intelligent control devices, such as thermostats and intelligent appliances. This capability allows customers to operate home appliances remotely from the internet via their computer or their smart phone. Additionally, new standards are in development, such as CEA-2045, that may enable "plug and play" communication strategies to other devices (water heaters, refrigerators). These new technologies represent a possibility for the future of load control that needs to be further studied to determine if DEF can leverage existing networks and technology (e.g. intelligent thermostats) in customers' homes to accomplish its load control objectives.

In addition to these two technological developments, as DEF began working with the vendor to develop the 2-way switches and proprietary network, the vendor encountered challenges with implementing a first-of-a-kind technology. This was not unexpected. Indeed, this is why DEF implemented a step-wise approach to the implementation of this project, to provide the opportunity to be reactive to changing technology and responsive to potential challenges.

To that end, DEF continues to study the rapidly changing technology and customer expectations to implement the best solution to maintain the existing

benefits and allow a smooth transition to the future technologies. To support a smooth transition, the Company will continue toward development of a new Load Management System. The completion of the programming for the new Load Management System will provide the functionality to support the legacy load management switches as well as other future load management technology that the Company may implement. This system will also include functionality to support asset management and maintenance.

Q. What is the Company's current plan regarding the existing load control switches?

A. Given that DEF now has access to additional spare parts, it is able to extend the life of the existing load control switches. This will provide DEF additional time to explore the developing technologies to ensure the most cost-effective solution is selected. DEF assumes a certain incremental number of new customers will sign up for the program, and will continue to install existing load control switches until the new 2-way switches are selected and available. DEF plans to refrain from actively marketing the program until that time. Per discussions with existing vendors and others, DEF anticipates testing two-way switches in 2014.

Q. What costs did the Company assume for the Energy Management program for purposes of performing the cost-effectiveness tests?

A. For the Residential Load Management (RLM) program, the Company assumed the costs of connecting a new program participant and the incentive

payments for the new participant on an annual basis. Connection costs included labor and switch(es).

Q. With these cost assumptions, is the Energy Management program cost effective?

A. Yes, this load control program is cost effective under all Commission approved cost-effectiveness tests. Accordingly, DEF has included it in its numeric goal.

SUPPLY SIDE EFFICIENCIES

Q. How are supply-side (generation, transmission, and distribution) efficiencies incorporated in DEF's planning process?

A. DEF evaluates possible supply and demand-side alternatives and develops the optimal plan as an integral part of its integrated resource planning (IRP) process. DEF employs an Integrated Resource Planning (IRP) process to determine the most cost-effective mix of supply- and demand-side alternatives that will reliably satisfy our customers' future demand and energy needs. DEF's IRP process incorporates state-of-the-art computer models used to evaluate a wide range of future generation alternatives and cost-effective conservation and dispatchable demand-side management programs on a consistent and integrated basis.

Q. How do supply-side efficiencies impact DEF's DSM Programs?

A. DEF develops projects that will contribute to the overall fleet efficiency in operation and screens these in the Integrated Resource Planning process.

DEF's IRP process includes modeling for both capital optimization as well as detailed modeling of production cost impacts. The selected plans are identified based on the lowest overall life cycle costs including operational efficiencies derived from the selected projects. In the Integrated Resource Planning process, supply side and demand side projects are considered to achieve the most cost effective portfolio considering the overall portfolio efficiency.

Q. Should the Commission establish supply-side efficiency goals in this proceeding?

A. No. DEF continuously identifies and evaluates conservation and efficiency improvement opportunities for generation, transmission, and distribution in its planning processes (including TYSP and need determinations). Accordingly, there is no need in this proceeding to set goals for such supply-side efficiencies.

EXISTING SOLAR PILOT PROGRAMS AND SOLAR SET-ASIDE

Q. What are DEF's current Solar Pilot Programs?

A. DEF current solar pilot programs consist of six initiatives including photovoltaic (PV) systems for commercial and residential segments, PV systems for schools, Solar Water Heating for Low Income Residential Customers pilot, Solar Water Heating pilot for residential customers and a Research and Demonstration pilot designed to research renewable energy technologies and establish initiatives to support the development of future solar and renewable energy pilot programs. Per Commission Order PSC-10-

0605-PAA-EG, DEF targets its spending on these pilots to 10% of its historic ECCR expenditures, or $6,467,592, each year.

Q. How have these pilots performed?

A. A brief summary of each pilot is provided below. Additionally, the number of participants since inception, the participation rate, and program costs are included in Exhibit No. ___ (HG 15).

Solar Water Heating for Low Income Residential Customers Pilot – DEF collaborates with non-profit builders such as Habitat to provide low-income families with a residential solar thermal water heater at no cost to the non-profit builders or the residential participants. The incentive is the total cost of the solar thermal system plus associated installation cost.

Solar Water Heating with Energy Management Pilot – This pilot encourages residential customers to install new solar thermal water heating systems on their residence by combining incentives from two programs. Customers are required to participate in the residential demand response program and receive the associated monthly bill credit in addition to a one-time $550 rebate to reduce the upfront cost of purchasing the renewable energy system.

Residential Solar Photovoltaic Pilot – This pilot is designed to reduce the initial investment required for a residential customer to install a new solar PV system on a residence by providing a rebate of up to $2.00/Watt of the PV dc power rating up to a $20,000 maximum. Participating customers are also required to have a Home Energy Check.

Commercial Solar Photovoltaic Pilot - This pilot seeks to reduce the initial investment required for a commercial customer to install a new solar PV system on their facility by providing a tiered rebate based on the PV power rating up to: $2.00/Watt for the first 10 KW; $1.50/Watt for 11 - 50 kW; and, $1.00/Watt for 51 – 100 kW. Participating customers are also required to participate in a Business Energy Check.

Photovoltaic for Schools Pilot – This pilot incorporates an educational component to expand the students' knowledge of renewable energy. This pilot provides the funding for the PV systems that are installed on the participating public schools. The program is limited to an annual target of one system with a rating up to 100 kW installed on a post-secondary school and up to ten (10) 10 kW systems with battery backup installed on schools serving as emergency shelters. Participating schools receive a new PV system at no cost to the school.

Research and Demonstration Pilot – A pilot designed to research renewable energy technologies and establish research and development initiatives to support the development of future solar and renewable energy pilot programs.

The residential and commercial PV pilot programs have been popular and available incentives are reserved quickly on the Company's website. DEF has identified opportunities throughout the pilots' operation to reallocate funds from pilots performing below estimated participation, such as the residential solar water heating pilot program, to those pilots with more than anticipated participants. The residential solar water heating with EnergyWise pilot has recently seen declining participation levels. DEF believes that this drop in

adoption of this technology is driven by the combination of the following three factors: (1) the inability of customers to secure loans to finance equipment; (2) increasing costs of the equipment; and (3) competition from alternative water heating efficiency.

Q. Do you have an understanding of why the Commission approved these programs as pilots?

A. Yes, according to the Order, none of the solar pilot programs were cost effective based on any of the three tests (RIM, Participant, or TRC). The Commission subsequently approved solar programs for each of the IOUs as pilot programs to take place between 2009 and this 2014 goals proceeding. The programs were approved as pilots because, as the Commission stated, "none of the programs were determined to be cost effective." FEECA Report at 22-23.

Q. Are the current solar pilot programs cost effective now?

A. No, as shown in the table below, none of DEF's current solar pilot programs are cost-effective under the RIM or TRC test. All of the programs, except Solar Water Heating with Load Management, pass the Participant test primarily due to the availability of tax credits and DEF's incentive to help program participants offset the cost of purchasing and installing the solar energy equipment. Without those subsidies, none of the pilot programs pass the Participant test.

DEF Solar Pilot Programs	Benefit Cost Ratio		
Solar Pilot Program	**RIM**	**TRC**	**Participant**
Solar Water Heating for Low-income Residential	0.274	0.454	1.832
Solar Water Heating with Energy Management	0.596	0.580	0.790
Residential Solar Photovoltaic	0.376	0.547	1.227
Commercial Solar Photovoltaic	0.422	0.628	1.351
Photovoltaic for Schools Program	0.141	0.163	1.180

Q. What has happened to the solar market since the Commission approved these pilots?

A. Over the course of the five years since that Commission order, the costs of solar technology has decreased and subscription rates for solar devices have increased, mainly because solar technology has advanced since that time. According to Green Tech Media (GTM) and Solar Electric Industries Association (SEIA) Q4 2013 U.S. Solar Market Insight Report, Florida is among the most cost competitive states in the U.S. (Exhibit No.___ (HG 16), Average Residential and Average Non-Residential Installed Solar by State Q4 2013 Upfront rebates of $2.00/Watt are no longer needed to incent the market. Additionally an increasing number of DEF customers are installing solar themselves without the aid of SunSense rebates. In 2013, approximately 2.2 MW of residential solar was installed and less than half of that capacity received the DEF rebate. In fact, in its FEECA Report, the Commission recognized that customers who wish to install solar devices likely do not need the rebate levels offered by the utilities under solar set aside order to incent them to install solar devices. FEECA Report at 23.

Q. Please describe the typical solar customer.

A. The average home value for 2013 solar customer in Florida was $366,633. Compare this to the median home value for all owner occupied houses in Florida of $188,600. In addition, the average income in Florida is $48,000, while the average income for solar customers is $101,000.

Q. What is the current all-in cost for rooftop solar photovoltaic?

A. As discussed above, this cost has decreased since the inception of the solar pilot programs. Below is a table of the reported installed price from DEF's participating customers:

DEF SunSense Rebate: (DC)	Residential	Commercial
2013 Final Installation Price Per Watt of Solar PV/DC	$ 4.13	$ 3.89
2012 Final Installation Price Per Watt of Solar PV/DC	$ 4.97	$ 4.85
2011 Final Installation Price Per Watt of Solar PV/DC	$ 5.01	$ 5.33

DEF SunSense Rebate: (AC)	Residential	Commercial
2013 Final Installation Price Per Watt of Solar PV/AC	$ 5.19	$ 4.90
2012 Final Installation Price Per Watt of Solar PV/AC	$ 6.25	$ 6.10
2011 Final Installation Price Per Watt of Solar PV/AC	$ 6.31	$ 6.70

It should be noted that the reported residential program costs had a very modest year over year cost decline. Whereas the broader U.S. residential market has seen significant declines from about $5.03/watt from Q4 2012 to $4.59/watt in Q4 2013. (see Exhibit No.___(HG 17) Average Installed Price by Market Segment. The Company would have expected to see greater cost declines given the cost decline in solar panels, and leads us to question if the rebates are truly incentivizing the market to reduce costs.

Q. Given the above, what is DEF's position on the continued need for solar pilot programs?

A. As demonstrated above, customer-owned solar installations have continued to become more viable and less expensive on their own over time. DEF believes that there is no longer a need for the 2009 solar set aside dollars in the 2015 through 2024 goals setting. Additionally, the general body of ratepayers appears to be subsidizing the more affluent customers who can afford to install solar devices without the incentive.

Q. What goals should be established for increasing the development of demand-side renewable energy systems pursuant to Section 366.82(2) F.S?

A. Duke Energy Florida does not believe that the Commission should continue to require the solar set aside pilots, since the demand-side renewable energy market appears to have matured significantly over the last five years and the programs continue to fail the cost-effectiveness screens. However, should the Commission determine that it is still appropriate to establish goals designed to increase the development of demand-side renewable energy systems, Duke Energy Florida believes that the goals should be no larger than those currently in place.

Q. Should the Commission determine that it is appropriate to again establish a goal associated with continuing solar set asides, how does the Company think the pilots should be modified?

A. In the case that the Commission decides to maintain the solar set asides, DEF believes that the design of any future pilot program should:

1. Eliminate subsidization of participants by non-participants;
2. Leverage scale and scope in a manner that lowers the installed cost per watt of solar;
3. Account for and minimize the costs of integrating solar into the distribution system; and
4. Provide opportunities to gather and analyze meaningful data and information regarding solar deployment.

Accordingly, if the Commission does decide to maintain solar set asides, the Commission should allow DEF to present new pilot programs that are geared toward meeting these objectives in the program and measures design phase of this proceeding.

Q. Based on the objectives you just mentioned, does DEF have a pilot program that it recommends the Commission should approve if the Commission choses to keep the current solar set aside?

A. DEF is not offering any specific alternatives in this phase of the proceeding given that we are currently in the goals setting portion of this docket and not in the program plan and development phase. That being said, however, a conceptual pilot program that DEF is considering would involve DEF using the existing solar set aside dollars to build utility-owned solar generation to initially serve all customers that could eventually be used as a community solar offering allowing individual customers to meet their renewable energy goals. If the Commission does decide in this goals setting phase that it

wishes to keep the current solar set aside in place, DEF would provide more detail on this concept at the appropriate time in the program plan development phase.

CONCLUSIONS

Q. What is the proposed DSM goal that is potentially achievable during the 2015-2024 period for Duke Energy Florida?

A. The goal for DEF representing the total cost effective kilowatt and kilowatt-hour savings reasonably achievable through demand side programs for the period 2015 – 2024 is:

- 419 MW of winter peak demand reduction
- 259 MW of summer peak demand reduction
- 195 GWh of energy reduction

Q. Has DEF used a sound and reasonable process to determine its proposed 2015-2024 DSM goal scenario?

A. Yes. DEF used the Commission's approved cost-effective methodology to conduct a series of Participant, RIM, and TRC evaluations, considering the needs of our generation requirements, a comprehensive list of measures, measure costs, measure savings, measure feasibility, and measure saturation. Assessments were then conducted of the residential, commercial and industrial market segments (both new and existing construction) and the major end-use categories, to determine our proposed 2015-2024 goal scenarios. In summary, DEF's proposals for its goals in this cycle recognize

the economic realities that exist and achieve the best possible "win-win" for all DEF's customers, and for new customers that may be looking to Florida for future business development.

Q. Does the methodology used by DEF comply with statutory and Florida Administrative Code requirements?

A. Yes. DEF used the Commission's approved cost-effective methodology, as guided by Florida Administrative Code 25-17.0021, as well as Section 366.82, Florida Statutes.

Q. Does Duke Energy Florida's proposed DSM numeric goal adequately reflect the costs and benefits to customers participating in the measure, pursuant to Section 366.82(3)(A), F.S.?

A. Yes, as explained above, we are confident that the costs and benefits of program participants are adequately reflected in our proposed numeric goal.

Q. Does Duke Energy Florida's proposed DSM numeric goal adequately reflect the costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions?

A. Yes. The Participant and RIM tests taken together adequately encompass consideration of each of these costs and benefits. Given that we utilized these tests in our measure analysis, we are confident that the numeric goal we have proposed will ensure that all stakeholders' interests are balanced.

Q. Should Duke Energy Florida's proposed 2015-2024 DSM goals be approved?

A. Yes. Duke Energy Florida's proposed 2015-2024 DSM goals meet rule and statutory requirements, are cost-effective for participants and non-participants, help to minimize the rate impact for future capacity needs, address the desires and needs of its customers, and are reasonably achievable.

Q. Does this conclude your testimony?

A. Yes, this concludes my testimony.

IN RE: COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS (DUKE ENERGY FLORIDA, INC.)

FPSC DOCKET NO. 130200-EI

REBUTTAL TESTIMONY OF TIM DUFF

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Timothy J. Duff. My business address is 550 South Tryon Street, Charlotte, North Carolina 28202.

Q. Have you previously filed Direct Testimony in this proceeding?

A. No, but on May 15, 2014, I adopted the direct testimony of Helena Guthrie, which was filed with the Florida Public Service Commission ("FPSC" or the "Commission") on behalf of Duke Energy Florida, Inc. ("DEF" or "Duke Energy") on April 2, 2014.

Q. Please tell us your position with Duke Energy and describe your duties and responsibilities in that position.

A. I am the General Manager, Customer Regulatory Strategy and Analytics. Serving in in this capacity, I am responsible for the development of strategies and policies related to energy efficiency and all other retail products and services. I also oversee

the analytics functions associated with evaluating and tracking the performance of Duke Energy's retail products and services.

Q. Please summarize your educational background and employment experience.

A. I graduated from Michigan State University with a Bachelor of Arts in Political Economics and a Bachelor of Arts in Business Administration, and received a Master of Business Administration degree from the Stephen M. Ross School of Business at the University of Michigan. I started my career with Ford Motor Company and worked in a variety of roles within the company's financial organization, including Operations Financial Analyst and Budget Rent-A-Car Account Controller. After five years at Ford Motor Company, I started working with Cinergy in 2001, providing business and financial support to plant operating staff. Eighteen months later I joined Cinergy's Rates Department, where I provided revenue requirement analytics and general rate support for the company's transfer of three generating plants. After my time in the Rates Department, I spent a short period of time in the Environmental Strategy Department, and then I joined Cinergy's Regulatory and Legislative Strategy Department. After Cinergy merged with Duke Energy Corporation ("Duke Energy") in 2006, I started a four-year stint as Managing Director, Federal Regulatory Policy. In this role, I was primarily responsible for developing and advocating Duke Energy's policy positions with the Federal Energy Regulatory Commission. I became General Manager, Energy Efficiency & Smart Grid Policy and Collaboration in 2010, was named General Manager, Retail Customer and Regulatory Strategy in 2011, and assumed my current position of General Manager, Customer Regulatory Strategy and Analytics in 2013.

II. SUMMARY OF REBUTTAL TESTIMONY

Q. Please summarize your rebuttal testimony.

A. The purpose of my rebuttal testimony is to address the Direct Testimony of Witness Natalie Mims on behalf of the Southern Alliance for Clean Energy ("SACE") and Witness Tim Woolf on behalf of the Sierra Club. In addition, I will address Mr. Woolf's, Mr. Rabago's, and Dr. Fine's testimonies regarding the value of solar. Mr. Benjamin Borsch will be providing rebuttal testimony regarding the resource planning arguments raised by Ms. Mims and Mr. Woolf.

Despite the fact that they have filed reams of paper consisting of excerpts and portions of various publications and filings, the testimony of both Ms. Mims and Mr. Woolf only make a few assertions that are relevant to the issues in this docket. They also make sweeping arguments as to major policy and legislative changes that they believe are required for Florida, but as I explain below, such proposals are simply beyond the scope of this proceeding. Finally, their testimony criticizes DEF's analysis used to calculate the cost-effectiveness of each measure and develop an achievable goal, yet neither Ms. Mims nor Mr. Woolf make any recommendations based on any sound or principled analysis and in fact they ignore the utility's planning processes. Rather, they simply pull a proposed goal out of thin air ignoring the DSM Goals Rule 25-17, Florida Administrative Code (F.A.C.), and the Florida Energy Efficiency and Conservation Act (FEECA).

First, Ms. Mims and Mr. Woolf both argue that the Rate Impact Measure ("RIM") test is inappropriate for use in setting DEF's energy efficiency goals, because, among other things, only one other state uses RIM as the primary cost-effectiveness test. However, there are many other states that consider RIM among

other tests when setting goals. In addition, the RIM test is the only test that appropriately balances the interests of both participants and non-participants. It is important to note that regardless of activities in other states, this Commission is focused on applying requirements that are consistent with Florida law and prior Commission guidance to the utilities subject to its jurisdiction.

In contradiction to Ms. Mims and Mr. Woolf's arguments regarding the use of a 2-year payback screen to account for free ridership, my rebuttal testimony will demonstrate that the use of such a screen complies with the requirements of the FEECA statute and ensures that the Company is not paying customers for measures they would do anyway.

Said simply, the intervener witnesses are unhappy with the goals proposed by all the utilities, and their solution is to recommend a goal based on a level that is unsupported by the tests required under the FEECA statute. Such an arbitrary approach is not consistent with the FEECA statute and is not how this Commission has set goals in the past. Rather, this Commission has set goals only after thoughtful consideration of the analytics, including the results of the cost-effectiveness tests and impact on customer rates.

Q. Are you sponsoring any exhibits with your testimony?

A. No.

III. REBUTTAL TESTIMONY

Overview of Intervener Testimony

Q. Can you summarize the main points raised by the Intervener witnesses in this proceeding?

A. Yes. One main theme with respect to the intervener testimony, in particular Ms. Mims and Mr. Woolf, is to challenge the processes by which Florida, and this Commission, review and consider various issues. They suggest wholesale policy changes to the process, which in some instances may only be achieved through legislative or rule amendments. For example, they advocate major changes to the Commission's Ten Year Site Plan process, but that process is set forth in statute. In addition, they raise several issues, such as the appropriate reserve margin level and the concept of decoupling, that are well beyond the scope of this proceeding. This proceeding is to implement the FEECA statute, as it is currently worded and not how the intervener witnesses wished it read. FEECA has been a benefit to Florida as a state, and to the customers of the FEECA utilities, including DEF, for over 30 years. Accordingly, my rebuttal testimony will not further address the merits of these arguments.

Q. How would you characterize the majority of Ms. Mims' and Mr. Woolf's testimonies?

A. Ms. Mims and Mr. Woolf spend much of their testimony making inappropriate and invalid comparisons to other jurisdictions that have no bearing on this proceeding. They also make various one-off assertions about the validity of DEF's process at nearly every step of the analysis, yet they fail to recognize Florida Rule 25-17 (F.A.C.) which requires goals to be based upon the utility's most recent planning process and provide cost-effective savings reasonably achieved over the ten-year

period of analysis. In other words, they spend a lot of time criticizing DEF's analysis, yet they do not make concrete suggestions as to how the analysis should have been done and how their proposed changes would have changed the outcome. Nevertheless, in the final section of my testimony, I address some of these items to clarify the inaccuracies in Ms. Mims' and Mr. Woolf's testimonies. However, the absence of specific rebuttal to each and every word contained in these testimonies should not be taken to mean that I agree with their arguments. I have simply focused this testimony to address specific issues that have some bearing on this proceeding.

Q. What main points do Ms. Mims, Mr. Woolf, Mr. Rabago, and Dr. Fine make with respect to DEF's direct testimony?

A. Ms. Mims and Mr. Woolf make three main arguments that are most relevant to this proceeding: use of the RIM test, use of 2 year payback screen to account for free ridership, and resource planning. My rebuttal testimony will be focused on addressing the first two of those main points. The third point will be addressed by DEF Witness Mr. Borsch. In addition, Mr. Woolf, Mr. Rabago, and Dr. Fine make one main argument regarding the solar pilot programs, which I will also address.

Use of RIM Test and Proposed Goals

Q. Is DEF in agreement with Ms. Mims' and Mr. Woolf's arguments regarding the use of the RIM test?

A. No. First, I dispute the notion that the RIM test is not used in any state other than Virginia. While it is true that the Virginia legislature has specified the use of RIM as the primary test, Virginia considers other tests too. The interveners imply that other

states do not use the RIM test. However, the RIM test is used in many other states in much the same way that it is used in Florida – it is one of several tests considered by the Commission to determine the cost effectiveness of the various DSM program options. DEF believes that the Commission has flexibility to consider results under the Participants, RIM, and Total Resource Cost ("TRC") tests and determine that, to account for rate impacts and other inequities that may arise when using cost effectiveness tests other than RIM, goals should be set based on measures that only pass the Participant and RIM tests. In fact the Commission's rule requires the use of the RIM, TRC and Participant tests in analyzing the cost-effectiveness of DSM programs. In previous dockets, the Commission recognized that the application of the TRC test could result in detriment to low-income customers and inequities between participating and non-participating customers. In Order No. PSC-94-1313-FOF-EG, the Commission stated:

"We will set overall conservation goals for each utility based on measures that pass both the participant and RIM tests…..We find that goals based on measures that pass TRC but not RIM would result in increased rates and would cause customers who do not participate in a utility DSM measure to subsidize customers who do participate…"

In addition, it is inadvisable to make comparisons to other states without understanding the particular legislative and policy considerations at issue in that state. For example, in many states, there is no official goal setting proceeding like the one conducted by the FPSC. In Indiana and Ohio, their respective regulatory commission and legislature have mandated utility EE goals based on the similar arbitrary percentages that Ms. Mims and Mr. Woolf advocate. Interestingly, the utilities in

Indiana have fallen short of this goal and the Commission's mandated targets were recently repealed by statute because of concerns regarding both the feasibility of meeting the goals, as well as the magnitude of the projected costs required to meet the high goals. And in Ohio, while the utilities have been able to meet their compliance obligations as the annual goals have ramped up from 0.3% to 0.9% (2009-2013), recently passed legislation has been proposed to establish a two-year hiatus from the mandates, in order to allow the legislature to determine the appropriateness of mandates given the rising costs associated with energy efficiency compliance. It is also important to note that Ohio allows energy efficiency over-achievement versus prior annual mandates to carry forward, as well as allowing for energy efficiency achievement predating the mandates by up to three years to count toward the annual compliance. This ability to count prior impacts towards annual compliance goals recognizes the fact that once an efficiency measure is implemented, there are no more savings available to count from that measure. Ohio is a relative newcomer to requiring utility offered energy efficiency programs, and despite the ability to achieve high levels of savings for relatively low cost, Ohio has demonstrated that it is critical to recognize what has already been achieved in the determination of future energy efficiency goals and achievement. This same recognition needs to occur in a state like Florida, which has been offering EE measures and achieving savings for more than three decades. Most of the low hanging fruit is gone, so the additional savings will be much more expensive and challenging to obtain.

Additionally, TRC allows a cross-subsidization between participants and non-participants such that program participants receive an economic benefit from the

DSM portfolio while program non-participants actually suffer an economic loss. In its Order No. PSC-94-1313-FOF-EG, the Commission additionally stated:

"All customers, including low-income customers, should benefit from RIM-based DSM programs. This is because RIM-based programs ensure that both participating and non-participating customers benefit from utility-sponsored conservation programs. Additional generating capacity is deferred and the rates paid by low-income customers are less than they otherwise would be."

DEF's proposal to use the RIM and Participant tests helps to ensure that the DSM portfolio plan will result in all customers, participants and non-participants, having rates and bills that are at worst no higher than they would have been if the best supply option was chosen.

Q. What is your response to the comments made in Mr. Woolf's testimony that using the RIM test results in "perverse outcomes"?

A. I do not understand what "perverse outcomes" result from use of the RIM test. The RIM test is a well-established and recognized test for evaluating the rate impacts of a DSM program. The purpose of the test is to eliminate measures that would raise electric rates for all customers. While program participants benefit from both the bill savings and any electric rate reductions associated with the DSM program, non-participants are only impacted by the programs' effect on electric rates. Hence the RIM test is often called the "non-participants test." It is also known as the "no-losers test" because all customers are better off when a DSM program passes the RIM test, both participants and non-participants. Therefore, Mr. Woolf must be asserting that a win-win outcome is somehow perverse.

Q. Given that both Ms. Mims and Mr. Woolf advocate the use of the TRC test to set goals, are their proposed goals based on the DSM measures that are cost effective under the TRC test?

A. No. Ms. Mims and Mr. Woolf propose arbitrary "percentage of sales" goals for DEF instead of goals that are supported by principled analysis.

DEF has a long history of pursuing energy efficiency and demand response over the past 33 years. Under the guidance of the Public Service Commission, DEF has developed and implemented DSM programs through an integrated resource planning process that has avoided the need for 18 peaking power plants. Since 1993, DEF has conducted approximately 700,000 energy audits. We have nationally-recognized programs and advertising campaigns that are used throughout the nation as examples for energy service providers to emulate. We are in homes and businesses every day to educate and motivate our customers on energy efficiency. DEF's residential and commercial energy audit programs are important delivery channels used to provide conservation education and increase customer awareness of energy efficiency. Trained energy advisors educate customers on their individual residential or business energy usage plus identify many measures and practices that are specifically tailored to the residence or business. During an energy audit, DEF provides the necessary information on its many different conservation programs and their associated incentives which are designed to encourage customers to implement the specific audit recommendations identified. The energy audit also serves as an educational opportunity for all customers to receive valuable energy information to support their energy goals regardless of income level, ownership or ability to implement measures requiring investments.

We are in the homes of low-income families installing efficiency measures at no cost and at the same time providing substantial education to encourage behavior that provides long term benefits. Additionally, we work with schools and communities to take advantage of every opportunity to encourage participation in our energy efficiency and demand response programs. DEF has been actively engaged in the education and delivery of both energy efficiency and demand response programs that have resulted in the savings of over 15,000 GWH and 1,645 WMW since 1980.

DEF's proposed goals are based upon the Company's most recent planning process of the total cost-effective kilowatt and kilowatt-hour (kWh) DSM savings reasonably achievable in DEF's service territory over the ten-year period 2015 to 2024 and were developed using the Commission's approved cost-effective methodology. This validated process, which was agreed upon by all parties during Staff's informal meeting on June 17, 2013, resulted in submission of cost effective goals that should be approved in this docket.

Unlike DEF, neither the Sierra Club nor the SACE witnesses have submitted any specifics to the Commission as to how their proposals would work in Florida, what programs and measures would be used to achieve their proposals, or what their proposals would cost Florida customers. Instead, the Sierra Club and SACE witnesses pick arbitrary goals that are unsupported by any meaningful analysis (much less an analysis specific to Florida) and ask the Commission to approve them based on the belief that unspecified measures and programs could be created quickly and would instantly work in Florida at some undetermined cost. Offering such speculation and supposition to the Commission appears to ignore the well-established process through which the Commission and the Florida legislature have thoughtfully

and effectively balanced the interests of all customers to prudently manage demand side management and energy efficiency in Florida over the past three decades.

Q. Did the interveners provide any indication as to how customer rates would be impacted if the Commission were to adopt their arbitrary proposed goal?

A. No, but after reading SACE's and the Sierra Club's testimony, both the rate implications as well as overall cost related to their proposals do not appear to be significant concerns to them. In reviewing the testimony provided by SACE and the Sierra Club it becomes obvious that their collective objective is to increase energy efficiency to a level of approximately 1 percent of total retail sales. It appears that they started with this end result in mind and then attempted to piece together some sort of argument to support it, while paying very little attention to the feasibility of achieving the end results in Florida, or the potential impact the results would have on customers.

Again, ***any*** additional costs under such a scenario would result in the creation of "winner and losers," with the "losers" being the non-participants who are often the least able to support any additional burden of cost. Looking at energy costs as a percentage of household earnings, one can see the "losers" are those customers least able to subsidize the cost for programs in which they are unlikely to be able to participate.

Income spent on energy relative to households earning:[1]

- >$50,000 / year – **7%** of income

[1] Sources: Redefining Progress; U.S. Census Bureau, Current Population Survey, 2006 Annual Social and Economic Supplement

- $10,000 - $30,000 – **20%** of income *(25% of households)*
- <$10,000 – **46%** of income *(8% of households)*

Those consumers earning less than $30,000 are often forced to make hard decisions on what bills to pay….. housing, food, education, health care, and other necessities. Without the necessary capital to make energy efficiency investments and take advantage of energy efficiency program incentives, these customers would be forced to spend more of their limited income on energy bills to subsidize the costs of customers that can afford to take advantage energy efficiency programs.

Two Year Payback Screen to Limit Free Ridership

Q. What is your response to criticisms regarding the two year payback limit?

A. Rule 25-17.0021(3) provides that each utility's projections of numerical goals shall reflect consideration of free riders. This Commission has utilized a payback period of 2 years or less since 1991, as a means to ensure that customers are not provided incentive payments to do things that they would, or perhaps should, do on their own without a utility incentive. Contrary to Ms. Mims' and Mr. Woolf's assertions that the use of a 2-year payback screen is arbitrary, it is reasonable to assume that customers will act in an economically rational fashion and implement measures with a 2 year or less payback. Additionally, during the residential and commercial audits conducted by DEF, energy advisors educate and encourage customers to implement any energy conservation measure deemed appropriate for their residence or facility including those that have a payback of two years or less. During the company's Home and Business Energy Checks, energy advisors provide

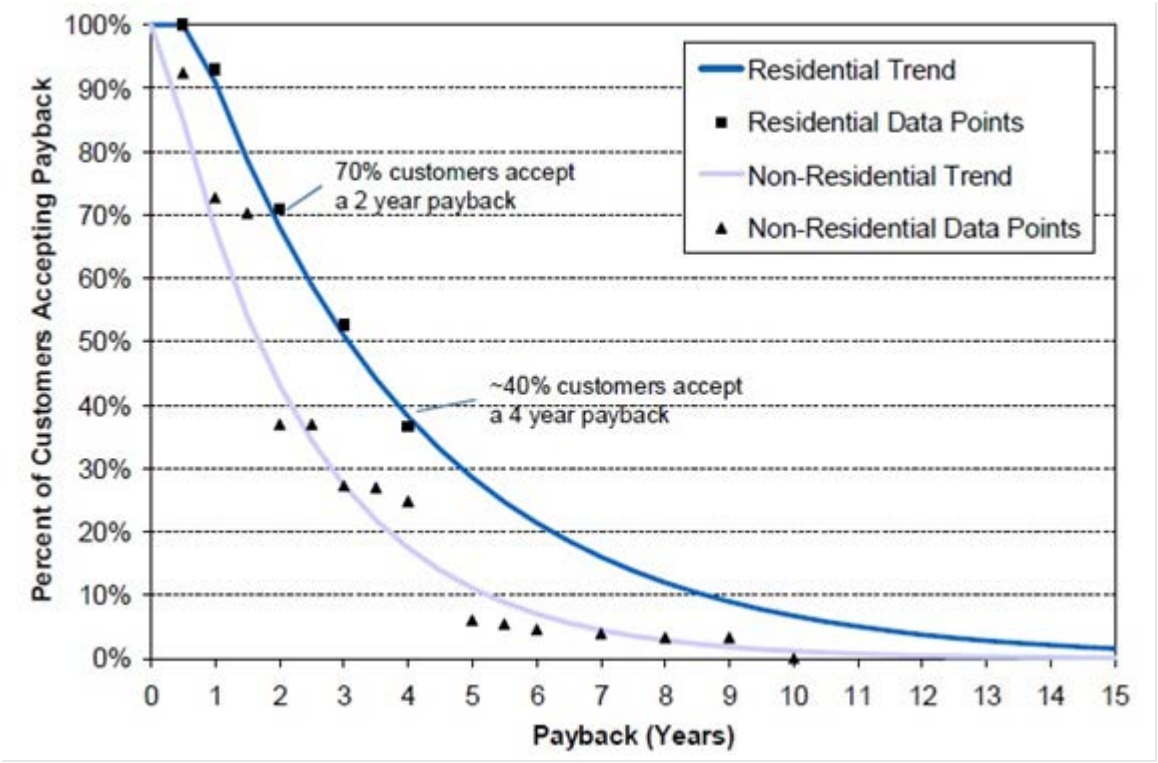
customized energy information along with education on low-cost measures and practices that customers can adopt.

In DEF's 2013 Residential End-Use Study, a significant number of responders indicated they had implemented measures such as lighting and low-flow showerheads/faucets on their own with 68% of those customers reporting success in the conservation actions they had implemented. Specifically, although DEF does not offer a residential LED lighting program, LED lighting has been considered or tried by 44% of residential customers with 19% reporting they have installed 1 to 3 LED bulbs. LED lights have a longer payback period than the 2 year period applied by DEF in this proceeding. Therefore, customers can make rational decisions with respect to investing in energy efficiency measures that have sufficient energy savings.

As compared to residential customers, DEF believes that some commercial and industrial customers may already implement measures with greater than 2 year payback periods (e.g. 3 or 4 years) depending on that particular customer's financial ability and how the measure fits into their long-term business strategy. Commercial and industrial customers, with respect to their electric bill, probably tend to be somewhat more analytical and measured in approaching their cost of electric service, and therefore more likely to evaluate measures with longer payback periods and find that they are able to implement those measures based on their business. Many studies indicate that a high percentage of companies look for a two year pay back on efficiency investments While most residential customers, generally speaking, would not have the ability to make decisions on that longer timeframe, they seem able to make shorter payback decisions. Therefore, DEF believes that a 2 year across the board payback period is appropriate for all customer classes.

As to the remainder of the criticisms voiced against a two-year payback limitation, there are many published curves that estimate customer adoption in response to payback levels. These curves are frequently used in many states to develop DSM market potential studies, as well as in utilities' integrated resource planning process. The following graph in Table 5 is typical of this type of curve.

Table 5:



*Source: ICF – Entergy, New Orleans, Inc. Achievable Demand Side management Potential Study, October 30, 2012

Table 6:

Payback Level	Two year Payback Adoption	1.5 Yr Payback Adoption	1 Yr Payback Adoption
Residential Free Riders	~70%	~80%	~90%
Non Residential Free Riders	~45%	~55%	~70%

From a two year payback for residential customers, as shown in Table 6 above, providing rebates to achieve a 1.5 year payback would result in approximately 80% free riders and increase costs significantly. Providing an incentive to buy down a 2-year payback to 1-year creates approximately 90% free riders and is estimated to almost double costs due to increased incentives. We believe that education is a more cost-effective solution than offering incentives for implementation of measures with payback less than two years, and our residential and commercial audits make these recommendations.

In addition, there are other external applications of a payback period screen that support the logic of not incenting activities that pay for themselves over such a short period of time. In Utah's State Energy Program's Zero-Interest Loan Program, "Loans are not provided for any projects that have an energy cost payback period of less than two years or more than twelve years." And contrary to Ms. Mims' assertion, other states also use variations of a payback screen as a means to remove free ridership. For example, New Jersey, a state that was ranked 12th in the ACEEE 2013 State Efficiency Scorecard, in a recent review of the budget for a C&I Large Energy Users Pilot Incentive Program Proposal, a proposed energy efficiency under the states Clean Energy Program, the New Jersey Division of Rate Counsel stated that "A

payback term of 2 years is typical for reducing free riders."[2] Additionally, in Wisconsin, that long operated under the 50% return on investment rule and would not fund projects with under a two year payback, the Focus on Energy Program still places a 1.5 year simple payback threshold on even its most flexible custom program for non-residential customers.

Q. What about Ms. Mims' testimony that evaluation, measurement, and verification should be used to account for free ridership?

A. I do not agree that using such means will be better than utilizing a 2 year payback screen. Ms. Mims recommendation is flawed for two reasons. First, even if one agrees with Ms. Mims, DEF does not have the information required to apply this methodology to account for free ridership. Due to the fact that the utilities' DSM goals are calculated on the basis of gross energy savings, DEF has not been required to and hence has not performed the kind of formal evaluation, measurement and verification (EM&V) that would be required to determine free-ridership, thereby making it impossible for DEF to account for free ridership with EM&V results in this proceeding. If the Commission were to implement this sort of major policy shift with respect to free ridership, it would have to be very clear about the specifics of what would be required for the EM&V (for example, what information will be gathered, how often, from how many customers, etc.). Such a change in methodology should only be applied prospectively and the details should probably be worked out in a

[2] In the Matter of Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for 2009-2012 Clean Energy Program: 2011 Programs and Budgets: Compliance Filings
Proposed Modifications to Previously Approved 2011 Budget BPU Docket Nos. EO07030203 and EO10110865: Comments of the New Jersey Division of Rate Counsel on the Concept Paper – Revised 05.16.11: C&I Large Energy Users Pilot Incentive Program Proposal. May 27, 2011, page 4

subsequent workshop or rulemaking proceeding. Again, however, as explained above, there is no need to use EM&V when the two year payback screen is an effective and proven tool to account for free ridership.

Second, to the extent that Ms. Mims is asserting that free ridership results that have been ascertained from EM&V results from other utilities operating in other states would be applicable in Florida, her assertion would be inappropriate. The free ridership findings included in the EM&V results for other utilities are not applicable to DEF. EM&V measures and captures the results of a specific program design, in a specific market at a specific point in time. Given the maturity of the energy efficiency market in Florida, the unique climate, and demographics of the state, any EM&V derived free ridership estimates from other utilities in other states would not be applicable.

Solar

Q. Have you reviewed Mr. Woolf's, Mr. Rabago's, and Dr. Fine's testimonies regarding the value of solar?

A. Yes, I have.

Q. Does anything contained in those testimonies cause you to question the results of the cost-effectiveness tests for DEF's solar pilot programs?

A. No. As explained in the Direct Testimony filed on April 2, 2014, DEF performed the Participant, RIM, and TRC tests for its solar pilot programs consistent with the methodology it uses to test the cost-effectiveness of all DSM measures. The results of the cost-effectiveness tests are summarized in the table on page 50 of the Direct Testimony, and show that each pilot program failed RIM and TRC by quite a large

margin. One of the pilot programs even failed the Participant test, and the only reason the other pilot programs did not also fail the Participant test is because there are subsidies that offset the cost of installing and purchasing the solar energy equipment. Without those subsidies, none of the pilot programs would pass the Participant test. The Intervener witnesses argue that DEF's (and the other utilities') analyses do not include all the benefits of solar, but they admit that such benefits have not been calculated specifically for Florida. The Intervener witnesses therefore do not offer alternative calculations of the cost-effectiveness tests using additional benefits on the solar side, because they have not quantified the specific benefits they claim should be attributed to solar. The only credible and relevant evidence as to the cost-effectiveness of the solar pilot programs is that set forth by DEF, which is calculated using the Commission-approved methodology.

Q. Do you continue to believe that the Commission should discontinue the current solar pilot programs?

A. Yes. Despite the arguments raised by the Intervener witnesses, DEF's current pilot programs are not cost-effective and should be discontinued. However, in the Direct Testimony, we provide some general guidelines for a design of a future solar pilot program, if the Commission wished to continue the same level of solar set-aside. Again, those guidelines are:

1. Eliminate subsidization of participants by non-participants;
2. Leverage scale and scope in a manner that lowers the installed cost per watt of solar;

3. Account for and minimize the costs of integrating solar into the distribution system; and
4. Provide opportunities to gather and analyze meaningful data and information regarding solar deployment.

We are considering a conceptual pilot program that would meet these guidelines, and eventually may lead to the development of a community solar offering.

Q. Has DEF developed any additional information with respect to how this future pilot should be designed to meet these guidelines?

A. Yes. The Company has developed a list of program characteristics that would be needed to achieve the guidelines. First, programs should be designed to promote grid-tied solar PV facilities so that all customers share in the cost of solar and in return all customers share in the benefit of lower system fuel expense. This will ensure that non-participants are not subsidizing participants. Second, to leverage scale and scope in a manner that lowers the installed cost per watt of solar, programs should be designed to promote large PV facilities, i.e. utility scale. Large systems promote greater economies of scale which lower the installed cost per watt. As highlighted in Exhibit No. (HG-17) Average Installed Price of Solar by Market Segment Q4 2011 through Q4 2013 (page 66 of full report), the Q4 2013 cost to install utility scale is $2.63 per watt lower than residential. PV facilities should also be optimally sited to minimize the cost to integrate solar into the grid. Finally, allowing DEF to own, operate and integrate solar into our system will create opportunities to gather and analyze data regarding solar deployment. DEF can better understand solar production and its interaction on our

system enabling us to integrate additional solar resources in the future in a sustainable way.

Accordingly, DEF is considering a conceptual pilot program that includes the following attributes:

- Utility owned community- sited solar assets owned and operated by DEF.
- Recover 100% of the annual revenue requirements through ECCR over the 5 year period starting 2015 and continuing through 2019.
- Larger scale community sited solar installations located on customer property and/or utility land.
- Grid-tied system assets that reduce fuel expense for all DEF retail customers.
- Development of a voluntary customer contribution component to the utility owned community-sited solar pilot program to evaluate customer willingness to support.
- Any retail customer may voluntarily contribute funds towards community solar program.
- Customers select appropriate contribution to meet their green goals and price point.
- No bill credit given for voluntary contribution.
- Revenues collected will reduce the revenue requirements for the community solar asset investment.

Such a design would align with all four factors outlined above. DEF's conceptual program is designed in a manner to better utilize the solar set-aside funds within ECCR to promote increased PV development in a fair and equitable manner for all customers. This

is achieved by designing utility owned community- sited solar, grid tied solar PV facilities and passing on the benefit of reduced fuel expense to all customers (i.e. all customers share in the cost and benefit of solar). This is different from rebate programs where only participating customers receive the benefit, or program designs that rely on monetizing the avoided fuel expense as a means to cover revenue requirements (i.e. no benefit passed to any customer). DEF believes such a proposal is a fair and efficient use of ECCR dollars to promote solar PV in Florida. The conceptual pilot program could also increase and encourage the development of demand-side renewable energy systems, as called for in section 366.82(2), F.S., by providing meaningful performance, acceptance, and educational information on larger scale solar deployments located on commercial and industrial customer sites. Such a pilot would also provide DEF meaningful information about the operational and system impacts of incorporating larger scale devices on a distributed basis within DEF's system which could further identify and potentially eliminate barriers to larger scale customer adoption of such systems. The pilot program would also increase the conservation of fuel resources, such as petroleum fuels, and provide system fuel savings to customers as additionally called for in section 366.82(2), F.S.

Q. Does DEF have any specifics regarding this potential future pilot program (e.g. cost, location, etc.)?

A. No. If the Commission would like for DEF to continue with developing this proposed pilot, DEF would further analyze the pilot program and present the specific program details in the plan development stage of this docket.

Q. Do any of the intervener witnesses have any comments about the conceptual pilot program as discussed in the Direct Testimony?

A. No, none of the Interveners raised any issues with DEF's conceptual solar pilot program. In fact, Dr. Fine recommends that the Commission consider developing a pilot program in which utilities would own the distributed solar PV systems, which as explained above would be a key component in the pilot program.

Secondary Issues

Q. How would you respond to the statement made by Ms. Mims and Mr. Woolf that a new technical potential study should have been done rather than an update?

A. Again, they are wrong. Contrary to their assertions, there is no requirement in the FEECA statute that an entire new technical potential study must be completed every 5 years. The FEECA statute requires that the Commission consider the full technical potential of DSM measures, but it does not specify that consideration of the full technical potential must be accomplished by launching an entirely new study in every goal setting proceeding. Indeed, before the 2009 proceeding, the last new technical potential study was done in 1993. After that study, in each proceeding that followed, until the 2009 proceeding, the FEECA utilities updated that one study. So it was appropriate that the Commission, given the FEECA amendments, required that a new technical potential study be completed in the 2009 proceeding, especially since it had been over 10 years since the last full study. However, the requested update or refresh of the 2009 technical potential study, which removed inapplicable measures and added new measures, makes sense and is consistent with the requirements of FEECA. Indeed, I understand that two other FEECA utilities contacted Itron, which did the

original study, and they confirmed that the process by which the FEECA utilities were updating the study was appropriate. Itron also confirmed that a full technical potential study is not required every 5 years.

Contrary to Intervener arguments, the update did not exclude important measures in the goal setting process, nor did it ignore certain sectors of available measures. For example, Mr. Woolf argues that measures for outdoor lighting should have been included in technical potential. DEF's Technical Potential study **included** several outdoor lighting measures, including LEDs. Once again, it appears that Mr. Woolf is making statements not supported by facts. Sierra Club was provided the list of measures evaluated in DEF's technical refresh with their associated potentials-including outdoor lighting in December 2013, again in DEF's response to Sierra Club's First Set of Interrogatories in Q17, and in Direct Testimony.

Q. What is your response to Ms. Mims' statement that DEF's program costs are "inflated" compared to similar programs in other jurisdictions?

A. I disagree for several reasons. First, the two programs that Ms. Mims use to support her assertion are retro-fit programs, which are umbrella programs that include a variety of measures that can all be implemented at a single residence or commercial location. Because there are several measures under the one program heading, there are more costs, and more savings, attributed to these programs as compared to other, stand-alone programs. This means that comparisons to other jurisdictions is inappropriate and amounts to an apples to oranges comparison.

Generally speaking, the jurisdictions that have the most costs for EE programs have either been implementing EE for a longer period of time or they have legislative

mandates that require aggressive levels of EE achievements. A March 2014 study by Berkley Laboratory explained that the Northeast US region has higher levelized costs for EE because that region has been running programs for a longer period of time. Similarly, Florida is an outlier in the South because it has been doing EE for a longer time period than other southeastern states. As a point of comparison, North Carolina has only been implementing EE programs since 2009, which is a large reason why $/kW is so much lower.

Another reason it is inappropriate to make comparisons to other states is because Florida has unique characteristics that make EE savings more challenging to achieve. For example, many of Florida residents are part-time or seasonal customers. In fact, according to the 2010 census, Florida was the "clear leader" in the absolute number of vacant homes classified for seasonal, recreational, and occasional use with over 650,000 homes, as well as one of the highest on a percentage of homes basis. Given the fact that many customers are not living in Florida for the entire year, it can be challenging to reach them with marketing and/or have them available to actually participate in the program. Thus the cost associated with particular programs and measures goes up (higher advertising and marketing costs) with not as much participation and achieved energy savings to show for the effort. Additionally this can negatively impact the energy and capacity savings achieved through the installation of a measure, if it is only delivering savings for a portion of the year. For example, installing an efficient water heater in a home that is only occupied from December through April will obviously deliver less savings to a part-time customer than in a residence that is occupied for the entire 12 months of the year. This will

obviously negatively impact cost-effectiveness and make it more challenging to acquire program participants.

Q. How do you respond to Ms. Mims' argument that administrative costs should not be included in DEF's cost-effectiveness evaluations?

A. This argument is wholly unsupported. I am unaware of any state in which administrative costs and overhead costs associated with energy efficiency programs are not included in the cost-effectiveness calculations, because it is a real cost that is required to implement any energy efficiency measure. The National Action Plan for Energy Efficiency's November 2008 publication entitled: *Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers*, clearly lays out that the calculation of both the TRC and RIM test should include program overhead costs. This conclusion is further supported, in the 2012 publication by Synapse Energy entitled: *Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for 'Other Program Impacts' and Environmental Compliance Costs*, that was co-authored by Sierra Club Witness Woolf, as it states that both the TRC and RIM calculations should include all costs incurred by the Program Administrator. DEF allocated an appropriate amount of administrative cost to each measure for purposes of evaluating the cost-effectiveness of that measure as prescribed by the FPSC in the *Cost Effectiveness Manual for Demand Side Management Programs and Self Service Wheeling Proposals* in FPSC Order No. 24745.

Q. Do you have a response to Ms. Mims' and Mr. Woolf's criticism of setting maximum incentives?

A. Yes, DEF set the incentive amounts at a level to maximize participation in the particular measure. This was a conservative approach to ensure that DEF was capturing the maximum potential associated with each measure. No measures were excluded from DEF's analysis due to the setting of maximum incentives. As demonstrated by adoption curves, the higher the incentive, the greater the number of participants. Contrary to interveners' assertions, this methodology does not increase costs so that measures will fail cost effectiveness. In fact, when setting incentives for measures using the RIM test, DEF only maximized the incentive to the level that resulted in the measure having more than a two-year payback while allowing the measure to be cost effective.

Q. Ms. Mims and Mr. Woolf both argue that the utilities should include additional benefits in the cost-effectiveness evaluations, specifically non-energy benefits and "Other Program Impacts." Do you agree?

A. No, I do not. Inclusion of these alleged benefits is not called for in the Commission-approved methodology for the types of costs and benefits to include in the cost-effectiveness evaluations. This is so for good reason – the quantification and confirmation of any such benefits is highly speculative. And, it is unreasonable and inappropriate for the Commission to base goals on such information. This Commission has a proven track record of basing its goals on substantiated information, verified facts, and transparent analysis, not speculative conjecture.

Q. Do you have a response to Ms. Mims' assertions regarding the participation rates DEF assumed for its measures?

A. Again, Ms. Mims misunderstands the process by which DEF analyzed participation rates. At every point, DEF maximized participation rates so as to encourage a larger goal. DEF applied actual historical data and program knowledge from its currently operating programs as a basis for projecting participation in many of the DSM measures included in DEF's goals analysis. For those measures where DEF had little or no experience, Itron applicable participation was used to represent the overall size of the applicable market for each measure. For a more detailed discussion on this topic, please see DEF's direct testimony filed April 2, 2014.

Q. Are you surprised that DEF's goal, as compared to the other FEECA utilities, is different?

A. No, I am not. Each FEECA utility properly completes its own independent analysis of avoided cost information, against which each DSM measure is analyzed for cost-effectiveness. This utility-specific evaluation will have differences, given where each utility may be with respect to current and future load expectations, generation plans, and the like. In addition, each utility may have different historic experiences with particular programs and measures that impacts the projected participation levels for those programs and measures. Although each Company rightfully has different goals, directionally the goals presented by each utility recognize the impact of the same factors such as the utility's planning process, the continued implementation of codes and standards, customer behavior, and the maturity of Florida's DSM Programs.

Q. How do you respond to Ms. Mims' and Mr. Woolf's assertions regarding the calculation of rate versus bill impact associated with the proposed goals?

A. Mr. Woolf claims that the methodology for estimating rate impacts is "inconsistent with the way rates are set in Florida." His basis for this statement is that base rates will not increase between rate cases and "DSM will not increase rates," and therefore, the utilities will not collect lost revenues. I disagree with Mr. Woolf and contend that his logic supporting these statements is flawed. Mr. Woolf fails to consider that when increased lost revenues drive a utility's returns down below a reasonable level, the utility will be forced to seek rate relief in order to support their obligation to reliably serve their customers.

Ms. Mims argues that although rates may be higher under TRC, the total bill will be lower because customers will use less kWh. Although it is true that those customers who participate in a program will receive an incentive and may use less energy which will result in lower bills, rates will increase for everyone. Variable costs, like fuel for instance, will be lower due to lower kWh usage, but rates have to be set to recover fixed costs such as transmission and distribution costs, customer service costs, and billing and metering. These costs will not decrease when less energy is consumed, therefore, rates will have to go up. Bills will be lower for some customers, but rates will be higher for all customers.

Q. Ms. Mims and Mr. Woolf challenge the method by which DEF calculated lost revenue – do you agree with them?

A. No. First, for use in the RIM test DEF calculated lost revenue consistent with the methodology prescribed by the FPSC in the *Cost Effectiveness Manual for Demand*

Side Management Programs and Self Service Wheeling Proposals in FPSC Order No. 24745. Secondly, both Mr. Woolf and Ms. Mims assert that lost revenues should be based only on the fixed components of rates not the variable cost components of rates. However, what they have both failed to recognize is that the savings in variable costs has been recognized on the benefits side of the RIM calculation, therefore, the variable costs also need to be included in the calculation of lost revenues on the cost side of the equation. For example, it is true that the Company will consume less fuel and incur less variable O&M due to the lower kWh sales as caused by the efficiency programs – and these cost savings are captured on the benefits side of the RIM equation. At the same time, because the Company will also experience fewer kWh sales, the revenues collected from the customer for fuel and variable O&M will be lower – and the impact of these changes are captured on the cost-side of the RIM equation. Therefore, when comparing RIM costs and the RIM benefits, it is clearly appropriate to consider variable costs including fuel.

Q. Does this conclude your testimony?

A. Yes.

BY MS. TRIPLETT:

Q Mr. Duff, do you have a summary of your testimonies?

A I do.

Q Would you please provide that?

A Yes.

Good morning, Commissioners. As I stated earlier, I'm the General Manager, Customer Regulatory Strategy and Analytics, for Duke Energy, representing Duke Energy Florida today.

Duke Energy Florida has been offering energy efficiency programs and measures to its customers for more than 30 years. In addition, changes in building codes and standards, economic conditions, and greater customer awareness have increased the amount of energy efficiency that customers are undertaking on their own without incentive from the utility. These factors and others reduce the number of programs and measures that Duke Energy Florida can cost-effectively offer its customers.

Accordingly, as demonstrated by my testimony, Duke Energy Florida proposed numeric -- numerical DSM goals for 2015 through 2014 [sic] than are, than are lower than those presented in the previous goal setting proceedings.

In support of the proposed DSM goals, my testimony will demonstrate that DEF utilized the agreed-upon methodology to establish the proposed reasonably achievable cost-effective goals and provided the necessary information and analysis to meet the minimum testimony requirements spelled out in Attachment A of the Commission's August 19th, 2013, order consolidating dockets and establishing procedure.

The company's proposed goals are based on a collection of measures and programs that pass both the Participant and Rate Impact Measure tests.

The proposed cost-effective DSM goals meet the requirements of Rule 25-17 of the ***Florida Administrative Code***. Duke Energy Florida proposes that the Commission set DSM goals using the Participant and RIM test, because these tests are well balanced and ensure that the perspective of participants and all other ratepayers, including non-participants, are fairly considered.

Therefore, as supported by my testimony and the accompanying exhibits, Duke Energy Florida requests that the Commission adopt its proposed numeric goals in this proceeding.

In my rebuttal testimony, I refute several assertions made by certain Intervenor witnesses.

Specifically I explain why the RIM test is the only test that appropriately recognizes the interests of customers not participating in the utility's programs, and hence allows for cost-effective goals to balance the interests of both participants and non-participants.

Despite numerous references to what other states are doing with energy efficiency, it is important to note that, regardless of the activities in other states, this Commission is focused on applying requirements that are consistent with Florida law and prior Commission guidance to the utilities subject to its jurisdiction.

I also rebut the Sierra Club and SACE witnesses who recommend goals based on a level of percentage of sales that is unsupported by the tests required under the FEECA statute. Such an arbitrary approach is not consistent with FEECA statute and is not how this Commission has set goals in the past. Rather, this Commission has set goals only after thoughtful consideration of analytics, including the results of the cost-effectiveness test and the impact on customer rates.

Finally, with respect to the solar set-aside, while DEF believes that the current solar pilot programs should be discontinued because they are not

cost-effective, I have presented an alternative conceptual pilot that would meet the objectives of the FEECA statute in what it believes to be a more fair manner for all customers.

DEF's conceptual program is designed in a manner to better utilize the solar set-aside funds within the ECCR to promote increased PV development in a fair and equitable manner for all customers. This is achieved by designing utility-owned community-sited solar grid type solar PV facilities and passing on the benefits of reduced fuel expenses to all customers.

This concludes the summary of my direct and rebuttal testimonies. I'm happy to answer any questions that you may have. Thank you.

MS. TRIPLETT: We tender Mr. Duff for cross-examination.

CHAIRMAN GRAHAM: Mr. Duff, welcome.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: The first question is OPC.

MR. SAYLER: Good morning, Mr. Chairman, Commissioners. Erik Sayler on behalf of the Office of Public Counsel. I have a few questions for the witness, and I'll be quick.

EXAMINATION

BY MR. SAYLER:

Q Good morning, Mr. Duff. How are you?

A Great, thanks. Good morning.

Q All right. Are you familiar with your company's response to OPC interrogatory number 10 where we asked, "If the Commission approves company-proposed DSM goals for 2015 through 2024, and if the company becomes eligible for a reward per FEECA"? Are you familiar with that response?

A Yes, I am.

Q And isn't it true the response was, "If the Commission approves RIM-based goals as proposed, then DEF does not believe that utility incentives or rewards are needed"? Is that correct?

A That's correct.

Q All right. Now turning to a couple of questions on rate impact. As it relates to responses to OPC interrogatories number 22 and 24, which are in the record as part of Exhibit 107, for the 1200 kilowatt residential customer, what would the rate impact be in 2015 if the Commission continued the current goals?

A $4.82.

Q All right. Same question: If the Commission approves the company's RIM-based goals, what would the rate impact be in 2015?

A $4.24.

Q All right. Last question: And if the Commission approved TRC goals, what would the rate impact be in 2015?

A $4.98.

MR. SAYLER: All right. Thank you very much. No further questions.

CHAIRMAN GRAHAM: All right. Thank you.

Department of Agriculture.

MR. HALL: No questions for this witness.

CHAIRMAN GRAHAM: Thank you.

NAACP.

MR. DREW: No questions for this witness.

CHAIRMAN GRAHAM: Thank you.

Okay. PCS Phosphate. No questions.

MR. BREW: No.

CHAIRMAN GRAHAM: Oh.

MR. BREW: Stop right there.

CHAIRMAN GRAHAM: Got me going, got me going too fast. This is the one you wanted. Mr. Brew, sorry.

MR. BREW: Thank you, Mr. Chairman. Hopefully I won't slow you down too much.

To start with, I'd like to circulate a series of exhibits so that we can just do this once. There are, there are five exhibits that have been -- being circulated now. The witness already has a set. So that

once we get started, it should be able to move pretty efficiently from there.

EXAMINATION

BY MR. BREW:

Q Good morning, Mr. Duff. Do you have a set of those exhibits?

A I do.

MS. TRIPLETT: I'm sorry, Mr. Chairman. Can we wait? I don't have my set yet.

CHAIRMAN GRAHAM: Okay.

MS. TRIPLETT: Thank you.

CHAIRMAN GRAHAM: Mr. Brew, are these in the order that you want to number them?

MR. BREW: They should be, Your Honor. I'll describe each of them as I go -- as we go through in the event that somebody has them out of order.

CHAIRMAN GRAHAM: Let's go ahead and give them numbers now.

MR. BREW: Sure.

CHAIRMAN GRAHAM: So we can -- it's easier to refer to. Which one will be -- the first number we're dealing with is 172.

MR. BREW: 172 has the description of average consumption versus summer peak demand/rural and residential.

CHAIRMAN GRAHAM: All right.

MR. BREW: 173 would be average consumption versus summer peak demand/commercial.

CHAIRMAN GRAHAM: All right.

MR. BREW: 174 would be average consumption versus summer peak demand/industrial.

CHAIRMAN GRAHAM: Okay.

MR. BREW: And I've lost track already. Is that 175 I'm at?

CHAIRMAN GRAHAM: 175 is coming.

MR. BREW: 175 would be net energy for load versus retail summer peak demand.

CHAIRMAN GRAHAM: Okay.

MR. BREW: And 176 would be net energy for load versus retail peak demand.

CHAIRMAN GRAHAM: You actually had them all in order.

MR. BREW: That was the coffee.

(Exhibits 172 through 176 marked for identification.)

CHAIRMAN GRAHAM: Whenever you're ready.

MR. BREW: Thank you.

BY MR. BREW:

Q Good morning, Mr. Duff. I'm J. Brew for PCS Phosphate.

If I could start you, I guess, at the back. Do you have with you all of the prefiled direct exhibits that were filed by Ms. Guthrie?

A Yes.

Q Starting from back to front, I guess, can I refer you to Exhibit HG-17, the last exhibit?

A I'm there.

Q Okay. Which shows average installed price of solar by market segment. Do you see that?

A Yes.

Q And there's a category for utility. Do you see that?

A Yes.

Q Do you know if the costs included in this bar chart for utility includes the cost of purchased or leased property?

A I, I can't tell you for sure, no.

Q Okay. So do you, do you know what costs are assumed with respect to utility-sited solar on this chart?

A It was a, it was a study done by a third party, and it was the average installed price. I can't tell you the specifics.

Q Okay. So then am I correct that it would be the company's intent to develop cost, location, and

other parameters of its suggested program when it files its implementation plan?

A Yes. The conceptual design that we've talked about in this goal phase of the process is at a very high level. When we got -- when we get to the plan phase of the process, we would definitely get into more details with respect to the cost elements.

Q Okay. Thank you. On page 25 of the direct, and actually on numerous occasions it references the integrated resource planning process performed by Duke. And my question is does that include elements that are also reflected in the Ten-Year Site Plan that Duke files each April?

A Yes, there are common elements.

Q Okay. On page 19, the answer beginning at line 12 reads: "In 2014, we find our residential use per customer continuing to decline, resulting in modest growth projections," and then there's the reference also to natural gas.

Could I refer you to the exhibit that's been marked as 172?

A I have it, yes.

Q Okay. And I'll represent to you that this is a graph of information contained in the Duke Energy 2014 Ten-Year Site Plan from Schedules 2.1 and 3.1 where the

bar chart shows average use per customer for rural and residential as depicted on the Ten-Year Site Plan, and the line graph is the summer peak demand projected by the company for retail. Do you see that?

A Yes.

Q Would you agree that, based on the Ten-Year Site Plan, that residential load average use is predicted to be declining substantially from historic levels?

A Obviously subject to check with the Ten-Year Site Plan, yes, I agree with the chart.

Q Absolutely. Okay. But that peak demand continues to grow.

A Yes.

Q Okay. And this will get boring. If I could refer you to Exhibit Number 173.

A I've got it.

Q Which is showing exactly the same information for the customer class from the Ten-Year Site Plan, also from Schedules 2.1 and 3.1. Do you see that?

A Yes.

Q And for the commercial class Duke is also forecasting substantially reduced usage per customer, while the summer peak demand continues to increase?

A Yeah. It dips and then it does rebound a

little bit. But it is an overall decrease from the current level. That's correct.

Q And it's substantially lower than the historical levels that are observed in the plan.

A That's correct.

Q Moving on to Exhibit 174, which is, again is the same information from the Ten-Year Site Plan from Schedule 2.2 and 3.1 for an average industrial consumption, again plotted against the summer retail peak demand. Do you see that?

A Yes.

Q Now here for industrials you don't see the same dropoff in usage per customer, although my understanding is that actually there are fewer customers along the way, but it, it does represent the same information in terms of usage per customer at the industrial level relative to peak demand.

A Again, just like the previous two, subject to check, that's correct.

Q Absolutely. So if we can move on to Exhibit 175. 175, I'll again represent to you, is from the Duke Ten-Year Site Plan, Schedules 3.1 and 3.3, which takes all of the energy inputs in terms of net energy for load against the retail summer peak. Do you see that?

A Yes.

Q And again it shows overall from -- compared to historic levels you have a substantial drop in energy for load, at least in the short-term, before it builds up again, while the summer peak continues to grow.

A That's correct.

Q Okay. And finally, Exhibit 176 again is taken from the Ten-Year Site Plan, also Schedules 3.2 and 3.3. It shows again net energy for load from the same column plotted against retail winter peak demand. Do you see that?

A Yes.

Q And so again you have the winter peak demand growing substantially, while you have a reduction in net energy for load.

A Until 2014, but then they both, they both increase.

Q Then they both increase after that.

A That's correct.

Q So just working from the last two exhibits then, comparing energy, energy for load to peak demand, either summer or winter, it's -- is it fair to say that we haven't seen the same control of growth in peak demand that we're seeing in energy usage in the short-term?

A It, it represents that the peak demand has

continued -- is continuing to grow, and the consumption has dropped, but will also, will also start to grow in 2015.

Q But the factors that have caused the usage to drop have not apparently affected the growth in peak demand.

A Not as strongly, correct.

MR. BREW: Okay. That's all I have. Thank you.

CHAIRMAN GRAHAM: Okay. FIPUG.

MR. MOYLE: Thank you, Mr. Chairman. I have a few questions on the free ridership issue.

EXAMINATION

BY MR. MOYLE:

Q You've put forward both your, your direct and rebuttal at the same time; isn't that right?

A That's correct.

Q Okay. The -- is one of the objectives of the RIM test and its related payback period of time to reduce free ridership?

A The application of the two-year payback screen in the goal setting phase is to address concerns regarding free ridership. That's correct.

Q And in -- you have said to the Commission in your testimony that it's really a policy decision as to

whether the Commission adopts a two-year screen or two-and-a-half-year screen or a three-year screen. I mean, that's a policy call. You'd agree with that; correct?

A That's correct.

Q Okay. And you'd also agree it's an economic tool that considers, or it can consider a return on someone's investment that they make in an energy efficiency device; is that correct?

A Yes, it could be looked at that way.

Q And as part of your analysis do you all look at it that way, in terms of looking at, you know, at the return that someone would achieve on a particular measure?

A That's, that's not how the screen was applied in this process, no.

Q Okay. But you do have the information that it could be applied in that manner, I guess; is that right?

A I believe the calculations could be done.

Q Okay. And am I correct that you're of the belief that the RIM test eliminates or greatly reduces -- maybe you can clarify -- the opportunity for cross-subsidization?

A Yes. The RIM, the RIM test fairly considers the rate impact on all ratepayers, not just the benefit

realized by participants.

Q Okay. And is the net effect of that to eliminate cross-subsidization?

A It is one of the effects, yes.

Q And why do you want to avoid cross-subsidization?

A The goal is to, through the RIM test, is sometimes called the no losers test, because if a measure passes RIM, rates will stay the same or go down for all customers. And so to design a program that benefits all customers rather than a select few is, was the purpose of setting a goal based off of RIM.

Q Okay. So I draw from your answer then that if you do not use RIM, then the Commission is in a posture of picking winners and losers; is that fair?

A I don't, I don't believe the Commission is picking winners or losers. This --

Q I'm just trying to say your answer previously was, as I understood it, was RIM results in not picking winners and losers. So my follow-up is if you don't use RIM and you do something else and RIM is not applied, will it result in winners and losers?

A It establishes goals that will not create losers. That's correct.

Q The RIM does?

A Yes.

Q Okay. Let's just say they put RIM over here and don't use it. Will the result of that be you are picking winners and losers?

A It has the ability -- if you do not use the RIM test and use the TRC portfolio that was analyzed for achievable potential, you would establish a goal that will create cross-subsidization and winners and losers, yes.

Q Okay. And you would agree that cross-subsidization is kind of a spreading or socialization of costs; correct?

A Generally, yes.

Q And Duke, as a matter of policy, does not support that; correct?

A Duke believes that it is not -- when you have the ability to eliminate cross-subsidies, they should be eliminated, yes.

Q Okay. And in your -- we don't need to go directly to it, I think we can just have a conversation -- but in your rebuttal I noted that you had remarked that you believe that businesses typically, or will make investments based on a longer payback period than two years; isn't that correct?

A Yes, I did.

Q Yeah. And why do you say that?

A Because, from my experience, when we've looked at customers in other jurisdictions specifically, we have customers that are making decisions for a number of reasons beyond just return, straight return, and so the straight financial return may be greater than three years because of other benefits it gives. Or they look at it and believe that a, a return, a positive return in a period greater than three years is justified, given where they could also invest their money. So they look at it as a positive investment versus other alternatives. They're a little bit more savvy than other customers.

Q The businesses. And so they look at it generally with an expectation of a return of, what, three years, four years?

A I can't tell you. I think it would vary by the customer. But I think, I think that they look at, they'll look at other alternatives to invest their capital and will invest their capital where they think they can get the greatest return.

Q And have you all tracked the returns of various programs or no?

A No.

Q Do you have a ballpark idea about, about, you

know, a two-year payback relative to a three-year payback as to the -- you know, if the Commission said, We're going to go with a three-year payback -- what kind of on average that return looks like as compared to a two-year return?

A We haven't done, we haven't done any of that analysis.

MR. MOYLE: All right. Thank you. That's all I have.

CHAIRMAN GRAHAM: Thank you, Mr. Moyle.

Wal-Mart, no questions; correct?

Sierra Club.

MS. CSANK: Thank you, Mr. Chairman. The Sierra Club does have questions.

EXAMINATION

BY MS. CSANK:

Q Hello, Mr. Duff.

A Good morning.

Q Diana Csank with Sierra Club.

Your current title is General Manager for Customer Regulatory Strategy and Analytics, you said.

A Yes.

Q And this position is like the one you held between 2010 and 2013, except now you also oversee and track the analytics and financial performance associated

with all retail program customer offerings by Duke Energy; right?

A That's correct.

Q That's a mouthful. For the record, please define retail program customer offerings.

A Retail program customer offerings are specific offerings to customers that are not included in base rates. It's things, things like energy efficiency and demand response, our outdoor lighting products that we offer, we have some energy services, some non-public utility operations. There's a number of offerings. It's basically any product or service that requires regulatory approval or code of conduct compliance that the utility would offer that's not covered in our base rate offerings.

Q All right. And Duke Energy operates in six regulatory jurisdictions.

A That's correct.

Q Florida, Indiana, Kentucky, Ohio, and the Carolinas, so that's six total?

A Yeah.

Q And you're, as you said, responsible for gaining regulatory approval for all of these customer offerings that we just described in all six of those regulatory jurisdictions.

A Yes.

Q So you're generally familiar with those offerings.

A Yes.

Q And participants in those offerings are generally better off as a result of those, of their participation?

A We would hope so, yes.

Q That's why they participate.

A Yes.

Q And those measures and offerings also make financial sense to the company.

A Again, I think you need to be a little bit more specific. You're talking about a whole -- a pretty wide variety of different things.

Q So if something rises to the level where you in your capacity are seeking regulatory approval, is it not the case that the company has analyzed and concluded that particular offering makes financial sense for the company?

A Not necessarily. It could be a compliance obligation as well.

Q Okay. In terms of energy efficiency, which is our topic here, is it true that in those six regulatory jurisdictions there are cost-effectiveness requirements

that determine the offerings that Duke provides?

A We report the cost-effectiveness tests in the different jurisdictions, yes.

Q Right. And so there's, there's an economic analysis that takes into account the company's financial considerations.

A The cost-effectiveness tests are different vantage points, depending on which test you're looking at.

Q Okay. We'll get into that in a bit.

So let's turn to a key measure of energy efficiency program performance. That's the incremental annual savings as a percent of retail sales. Are you familiar with that measure?

A Yes.

Q Could you state for the record Duke Energy's, Duke Energy Florida's 2013 incremental annual savings?

A 2013 I believe was 115 gigawatt hours, subject to check.

Q As a percent of retail sales could you give us the figure?

A I don't have that number. Sorry.

Q It is under or over .3 percent?

A It's probably around .3 percent.

Q Okay. And under your proposed goals, DEF's

proposed goals, savings by 2019, again as a percentage, do you know what those would be?

A I don't have that calculation in front of me.

MS. CSANK: Okay. I'd like to pass around Exhibit 173 and mark it for the record.

CHAIRMAN GRAHAM: We already have an Exhibit 173.

MS. CSANK: 174 then.

CHAIRMAN GRAHAM: We're actually all the way up to 177.

MS. CSANK: 177. Sorry.

CHAIRMAN GRAHAM: This is Exhibit 177.

(Exhibit 177 marked for identification.)

BY MS. CSANK:

Q Do you have that in front of you?

A Yes.

Q Do you recognize it?

A It looks familiar from Mr. Woolf's direct testimony, yes.

Q Okay. It's an excerpt from Mr. Woolf's testimony that describes the percentage energy savings relative to retail sales in the six -- in the Duke service territories; is that right?

A That's what it's labeled, yes.

Q Okay. And specifically Figure 6.5 is the one

that I'm referring to.

A Yes.

Q Okay. So that should help us identify the level of savings that Florida -- DEF is achieving in Florida and proposing to achieve, as well as what Duke's sister subsidiaries are doing. Do you see what the 2013 incremental annual savings in the Carolinas is, or do you know that?

A I, based off of this line, I believe it's .6 percent.

Q So that's in 2013 Duke in the Carolinas is achieving nearly twice as much as Duke in Florida?

MS. TRIPLETT: Mr. Chairman?

CHAIRMAN GRAHAM: Yes.

MS. TRIPLETT: Dianne Triplett. At this point I don't want to interrupt the flow, but I'd like to just make a standing objection to the relevance of questions that are related to jurisdictions outside of Florida. I think that there's some concern with trying to take what other jurisdictions are doing. There's differences in policies, legislation. But I understand that the Commission would probably like to hear it and give it whatever weight it's due, so I just want to make a standing objection of relevance and then I'll be quiet.

CHAIRMAN GRAHAM: Okay.

MS. TRIPLETT: Thank you.

MS. CSANK: And, Mr. Chairman, Sierra Club submits that benchmarking is a standard industry practice and it helps inform and understand what a particular company -- in this case, Duke -- is capable of, and we'll discuss the various considerations that will inform what weight should be given to this evidence.

BY MS. CSANK:

Q So in terms -- so going back to where we were, in 2013 Duke in the Carolinas is achieving twice as much as Duke in Florida; is that correct?

A Based off of this graph, yes.

Q And in Ohio in 2013 that level is even higher. What's -- can you identify the savings in Ohio in 2013 as a percentage?

A It looks approximately .9 percent, based off of this chart.

Q Thank you. And in 2019 could you identify how much Ohio, Duke in Ohio is achieving, is proposing to achieve?

A Right now in Ohio everything is on hold. There is legislation that was passed that basically viewed the costs and feasibility of the current legislation as being problematic.

As you note, in 2013, even at .9, the utility fell short of its goals. So I think it's important to note that 2019 there are no form goals, because the, the goals are frozen for 2014 and '15 while the Legislature can reconsider whether the, whether the mandates make sense.

Q Thank you for that. And in Ohio has Duke recovered a reward for exceeding its goals?

A It has a utility incentive to exceed its goals, yes.

Q And it has actually accessed that incentive by exceeding its goals in Ohio.

A Yes.

Q Okay. And Ohio is where you see the highest percentage of energy savings across the six territories?

A Based off of this chart, but a lot of that's because of the individual nature of that market. They allow things to count that wouldn't count in other jurisdictions. If a customer, if a, if an industrial customer does something on its own, it can, it can get counted towards the utility's achievement. The baseline sales number gets adjusted if customers opt out. There's a number of reasons why those numbers are different.

Q Okay. And let's go through those

systematically. So let's identify -- we've identified that in 2013 Duke Energy Florida is achieving half as much and even less than half as much as Duke is achieving in Ohio. Let's talk about what might make up that difference. And, you know, I think previously your testimony has cited whether customers -- can we go through those factors that you think account for that?

A Sure.

Q And putting aside regulatory differences for now.

A Sure.

Q So could you identify one factor that might account for that difference?

A Yeah, the amount, the amount of heating days. Obviously, obviously Florida has considerably more heating [sic] days than, than Ohio does. So that creates a more savings opportunity would be a, would be a great example.

Q What about between the Carolinas and Florida?

A Again, Florida is still -- Florida is the highest in the country in terms of heating days, I believe.

Q Is there any indication that Duke Energy Florida may be transitioning to a summer peaking utility?

A I'm not really in the position to answer that question.

Q Okay. What about customers?

A Yeah. I think if you look at, if you look at, I believe I said it in my rebuttal testimony, you have an extremely high number of temporary residents in Florida, which can make it harder to market to them.

Q And do you have a sense of how much that factors into the difference in achieved or possible energy savings?

A We haven't performed any specific analysis. We just --

Q Well, there's no analysis on that.

A No.

Q Okay. Could you estimate approximately how much that would attribute to the difference?

A I'm not in a position to do that, no.

Q Okay. Is anyone in the company able to do that?

A I would have to check around. I --

Q Okay. How about avoided costs? Are those approximately the same across the service territories?

A I can't answer that question. I would need to talk to our, to our, to our different resource planning folks to make sure that the avoided costs are the same.

I'm sure there's differences.

Q But generally you're talking about a gas plant on the margin in terms of the avoided unit; right?

A I can't tell you that. It's -- because it's a deregulated state in Ohio, the generation is served through an RTO. So it's, it's a completely different situation for you to make that characterization.

Q Okay. So let's turn to regulatory policies.

A Sure.

Q Starting with Florida. So your -- Duke's proposal is based on the RIM test; is that correct?

A The proposed goals are based off the RIM tests, yes.

Q Not on the total resource cost test.

A No.

Q What else are DEF's proposed goals based on? The Participant test?

A Yes. All measures need to pass the Participant test as well.

Q And where did you present the results of the Participant test?

A It was in a discovery request, I believe.

Q But you just said that your goals are based on the Participant test, so that's not presented elsewhere, other than --

A It wasn't an exhibit, no.

Q Do the goals reflect the Participant test results?

A Yes. All the measures that are included in the achievable potential pass both the RIM and the Participant test.

Q So do any measures pass the Participant test and also pass the RIM test?

A Yes. That's what consists -- that's what makes up the achievable potential goal.

Q Do you know how many such measures there were?

A I can look at the, I can look at the exhibit, yes.

Q Okay.

A Approximately 23 unique measures, I believe.

Q So those are the 23 unique measures that both pass the Participant test and the RIM test?

A Those are the unique measures that pass the Participant and RIM tests that consists -- that make up the achievable potential.

Q Okay. And what about measures that pass the Participant test but not the RIM test?

A They were screened out.

Q Do you know how many measures there were?

A Not off the top of my head.

Q Okay. So how does, how does DEF's proposed goal then reflect those measures that pass the Participant test but don't pass the RIM test? They're not in there; right?

A They would not be included, no.

Q So the RIM test trumps the Participant test.

A That's correct.

Q Okay. Let's go back to your discovery response to OPC's interrogatories that were discussed earlier. Those are interrogatories 22 and 24.

A Just so we're -- do we -- okay. Yeah, I've got it.

Q Okay. And so that's regarding the rate impact of DEF's proposed goals?

A Yes.

Q And interrogatory 22 responds to the rate impact of RIM-based goals and 24 regarding the TRC-based results?

A Yes.

Q Okay. And EE measures, the energy efficiency measures, have expected lives that exceed five years; right?

A Can you repeat the question, please?

Q There are measures, energy efficiency measures, that have an expected life that exceeds five

years.

A There are some measures that do, some measures don't.

Q There's measures that even exceed a ten-year life expectancy.

A That's correct.

Q So in your rate analysis in response to Office of Public Counsel's interrogatory, where do you reflect those longer term impacts of measures with longer lives?

A It's factored in the, in the sales number that would be utilized for the purpose of calculating the rate.

Q But isn't it true that there are longer term downward pressures on rates that are not reflected in that analysis?

A But the RIM test takes into account those, all of -- the full life of the measure. So when you, when you get to the, when you get to doing the rate calculation, the impact of those has been factored into what measures are included in the potential.

Q Could you say that again?

A When you look at the TRC test in, for the second exhibit and the RIM test, the measures that are included in the achievable potential, the full value of the life of those measures has been considered in, in

the cost-effectiveness test calculations, which has put them into the portfolio, which is then used to calculate the rates by year.

Q So that exhibit is based on the RIM test results?

A No. The exhibit is based off of a, is based off -- for which one, 124 or 122?

Q 122.

A 122 is the RIM test, yes.

Q Okay. And it does not show the benefits to a participant; it shows a non-participant?

A It shows, it shows an average customer, yes.

Q Which is it, a participant or a non-participant?

A Well, it's an average customer consumption of 1200, of 1200 kWh. It doesn't distinguish whether it's a participant or a non-participant.

Q But wouldn't participants have bill savings that would --

A This, this is a rate analysis. When you're looking at a rate analysis, you're looking at how much will it cost a customer that consumes 1200 kWh. You could have a participant that used to consume more than 1200 who was a participant and it came down, or you could have a customer that didn't participate and

continues to consume 1200. It's not that type of an analysis.

Q I understand. Is there anywhere that you've presented the, that kind of bills analysis for participants?

A Not to my knowledge, because each customer would be unique.

Q But it's your testimony that your goals are based on the Participant test.

A Yes, and the RIM test.

Q And yet none of the measures that passed the Participant test are reflected in the RIM goal?

A No. There are participant -- there are -- all of the measures that are included in the company's proposed goal pass both the RIM and the Participant tests.

Q Right. And we covered the --

A So if it didn't pass the Participant test but passed RIM, it would be problematic. If it doesn't pass the RIM test but passes the Participant, it was screened out. It's both ways.

Q Right. Okay. Thanks for clarifying that.

So let's go back to those other jurisdictions. In the Carolinas is Duke's -- are Duke's programs based on the RIM test?

A We submit all four cost-effectiveness tests to the Commission when we seek program approval.

Q In the Carolinas you, you present the results of all four?

A Yes.

Q What are those four?

A The UCT, the TRC, the RIM, and the Participant test.

Q And the UCT, what is that? We haven't defined it yet in the record. Would you please do that?

A It's the Utility Cost Test.

Q Okay. And elaborate, please.

A The Utility Cost Test looks at the energy efficiency program based off of the utility's perspective from an investment standpoint.

Q And the test is generally considered the best for comparing demand-side and supply-side resources from a utility perspective?

A I don't know if I'd want to make the characterization it's the best. I think that's what it's designed to do.

Q Okay. Fair enough. And your company presents the results of the utility cost tests in other jurisdictions.

A That's correct.

Q In terms of the actual goal setting or the proposal and the, and the requirements set by -- in other jurisdictions, is that based on the RIM test?

A Florida is unique. It is the only jurisdiction where we set, we have a goal setting process. In all of our other jurisdictions we put together a portfolio projection, and that portfolio of programs is approved or not approved. And that even goes into states where we have mandated targets. So Florida is unique from that characteristic.

Q And so it's fair to say that the company can, can reasonably develop Utility Cost Test results here in Florida, present them as well?

A We can do the calculation, yes.

Q And there's nothing, there's no real barrier to you doing so?

A No, but it's not consistent with the statute.

Q The --

A The FEECA statute calls for TRC, RIM, and Participant, I believe.

Q The Commission's rule implementing --

A Yes.

Q Are you a lawyer, Mr. Duff?

A No.

Q And are you familiar with the legislative

intent section of FEECA that asks for it to be construed liberally to achieve its goals?

A Vaguely.

Q Okay. Does the Utility Cost Test indicate the extent to which DSM will reduce revenue requirements?

A It doesn't really look at revenue requirements, no.

Q Does it show anything about reducing average customer bills?

A No.

Q Okay. So let's move off of the cost-effectiveness test and talk a bit more about the two-year payback screen.

Your testimony is that the Commission should apply the two-year payback screen here.

A We believe that it is the appropriate case for the goals, but we did provide sensitivities on a one- and a three-year payback screen as well.

Q And do you apply the two-year payback screen in those portfolios that you develop in other jurisdictions?

A Again, we don't have a goal setting phase in those other jurisdictions, so it's unique.

Q All right. But you described putting together a portfolio and presenting it. Does the company use a

two-year payback to -- in developing that portfolio, or those portfolios?

A We consider free ridership in those portfolios. But as I, as I indicated in my rebuttal testimony, this is a different circumstance. You're talking about looking at measures that you have no program design, no market characteristics for. So in our other jurisdictions you're applying -- we do apply free ridership percentages based off of what we know about programs with respect to measurement and verification.

Q And why does that matter?

A Because it is important to consider free ridership in all, in all of our jurisdictions.

Q And so here in Florida do you track the market penetration of two-year payback measures in Duke's service territory?

A No, we do not.

Q So you don't have empirical data on the market penetration for those measures?

A We have some anecdotal survey data, but, no, we don't track those specifically.

Q So, but it's also your testimony that the metaphorical vast majority of low-hanging fruit for efficiency and reduction have already been harvested?

A We believe that's true, yes.

Q Well, wouldn't a two-year payback measure be low-hanging fruit?

A A two-year payback measure could be considered low-hanging fruit.

Q Why would it not be?

A Low-hanging fruit are things that are easy to achieve. I don't necessarily think there's a financial tie to low-hanging fruit.

Q The free ridership concept is premised on the idea that there are certain things that are easier to do, and thus --

A No, that's not what free ridership is conditioned on.

Q Please explain.

A Free ridership is things that customers would undertake absent the company's program.

Q So low cost means that it's easier to achieve?

A That's one variable in its achievement, yes.

Q So two-year payback measures are typically ones that have a lower cost and, therefore, the participant in them or the adopter would recoup their investment fast.

A That's what a two-year payback would mean, is that they would recoup their investment within two

years, yes.

Q So that also syncs up with the definition of low-hanging fruit, they're easier to achieve.

A Again, I think it's one -- financials is one, it would be one, one consideration in low-hanging fruit.

Q Okay. Well, let's explore this a bit further by taking a concrete example, okay, and let's focus on low income programs. Duke here in Florida offers some two-year payback measures in its Florida Neighborhood Saver program; is that right?

A We currently do, yes.

Q And if I were to identify for you some of those measures, would you be able to verify whether they're, they're offered in that program?

A Yeah, sure.

Q Okay. So lightbulb replacement, for example?

A Yes.

Q And water heater wraps and insulation for water pipes?

A Yes.

Q And water heater temperature checks and adjustments?

A Yes.

Q Low flow faucet aerators, low flow showerheads?

A Yes.

Q Okay. And so those are all currently included in your low income program here in Florida?

A That's correct.

Q And those are also generally low-cost measures that are easier to achieve.

A They are, they are low cost, yes, generally.

Q Please turn to Exhibit HG-12 of the direct testimony. At page 2 that shows the residential measures that pass the company's screening.

A I'm there.

Q Do you see any of those measures that we just identified on that list?

A No.

Q So none of the current low income measures passed the screening that you performed for this round of goal setting?

A That's correct.

Q And will the company discontinue those measures in the next ten years?

A Again, I don't know. We haven't gotten into the plan phase of this proceeding, which is where we would actually design, bundle, and put together a program. Again, the requirement is to have programs that are cost-effective, and it would be, it would be

under the guidance of the Commission if they thought it was appropriate for us to bundle measures in a manner that led to a cost-effective program.

Q All right. So do you anticipate that at least some of those current measures would continue?

A Again, until we get to that phase, it's hard for me to tell, but I think that Duke Energy Florida is very cognizant of its low income customers and would try to make a program for those low income customers.

Q And are you aware of how many low income customers Duke Energy Florida currently has?

A It would depend on the definition. But if you'd care to tell me, I would take it subject to check.

Q Those who are below the poverty line.

A Again, that's kind of a -- it's a, it's a broad term.

Q Okay. Let's move off of that and simply just ask whether those measures that would serve those customers are the ones that are currently in the Neighborhood Saver program.

A Can you repeat the question?

Q So the Neighborhood Saver program is the exclusive program currently serving those customers, or targeting those customers.

A We have a low income assistance program as

well.

Q Can you describe that, please?

A We provide incentives to non-profits or to residents doing non-profits to offset some of the costs of the weatherization work.

Q Okay. And in terms of the Neighborhood Saver program and the one you just described, are those reflected in your proposed goals?

A Again, programs are not reflected. Measures are reflected in the proposed goals.

Q Are those measures reflected in the goals?

A The measures, the measures that consist of those programs I do not believe are currently in the pro -- the currently proposed achievable potential.

Q In other words, those measures are not reflected in the proposed goals.

A That's correct.

Q Do you have any sense of the order of magnitude or how many energy savings that represents?

A No, not off the top of my head.

MS. CSANK: Okay. That concludes my questions.

CHAIRMAN GRAHAM: Thank you.

SACE.

MR. GUEST: I'd like to start off here by

introducing two exhibits.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: Four, make it four.

Okay. The first one is --

CHAIRMAN GRAHAM: Hold on. Hold on.

MR. GUEST: 178 will be Duke's response --

CHAIRMAN GRAHAM: Hold on. Let's wait for all these things to get out and we can label them all at one time.

MR. GUEST: Okay. Okay. We'll do, we'll hand them out all at once. Okay.

CHAIRMAN GRAHAM: They've got two more.

(Pause.)

Okay. Witness, do you have all four exhibits in front of you?

THE WITNESS: I do. Thank you.

CHAIRMAN GRAHAM: Do you have a pencil or pen? Okay.

MR. GUEST: We've got them highlighted. Oh, yeah, we're going to be writing numbers. That's right.

CHAIRMAN GRAHAM: All right. 178 is which one?

MR. GUEST: 178 is Duke's response to Sierra Club's first interrogatories, number 1-18, Bates number DEF-DSM 02547-02554.

CHAIRMAN GRAHAM: All right. That's 178.

All right. 179.

MS. TRIPLETT: Mr. Chairman, I have two that say the same thing, and I'm not sure which one is --

CHAIRMAN GRAHAM: One says "Excerpts" and one does not.

MS. TRIPLETT: Ah, thank you.

CHAIRMAN GRAHAM: The one that does not say "Excerpts" is 178.

MS. TRIPLETT: Thank you.

MR. GUEST: That's it. That's right. So that's the excerpts one, exactly.

CHAIRMAN GRAHAM: So 179 is the excerpts?

MR. GUEST: 179 is the excerpts.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: 180 would be Duke's response to Sierra Club's first interrogatories number 1-18. That will be 180. And these are the excerpts.

CHAIRMAN GRAHAM: And 181 will be the excerpts.

MR. GUEST: The excerpts, that's correct.

(Exhibits 178 through 181 marked for identification.)

CHAIRMAN GRAHAM: All right. We're ready when you are.

EXAMINATION

BY MR. GUEST:

Q Okay. So first what I'd like to do is turn to -- here's what I'm going to do here, to give you a little roadmap, is -- what I'm going to do is just ask you just a handful of questions about each of four measures which are highlighted here. And what I'm going to go through is just ask you what your price tag was, what your, your payback rate was, payback time, and whether it passed the rates test. That's my first lap.

So, and then actually I can go, I think, on this one and do applicable households, too. So I'm going to go through them all at the same time. Okay?

So let's start at the top, and looking at the first one just in order here --

CHAIRMAN GRAHAM: Which exhibit?

THE WITNESS: Can you tell me which exhibit you're on?

BY MR. GUEST:

Q I'm sorry. I'm on 179, which is the, is the excerpt. I'm on the first page. And I have to do, get to the first page because that's the only -- you know, this row is about eight feet long, and so I have to start at the left of the row so you can follow me with the highlighting.

So -- well, let me just do them in the order that I did last time. So let's start with water heater blanket. Do you see that one on the first page? That's number 408. Can you see that?

A Yes.

Q Okay. So let's slide all the way over to the next page, and you see at the top there -- I mean, I'm sorry -- the third highlighting from the bottom, your price tag is $21?

A Are you talking about the magenta highlighting?

Q Yes.

A Yes.

Q $21. Okay. So we've previously looked at a Lowe's printout of a website page. It shows the price tag of $21.57. Have you seen that? Do you need to look at it?

A I'll take it subject to check.

Q Okay. All right. So -- and that confirms that the price tag actually is $21, that you're right here?

A I can confirm that we used $21 in this exhibit.

Q Right. And I'd like to supplement the fact that you confirm it by showing that it's true by the

fact that Lowe's has that as its price. That's all I'm trying to do.

MS. TRIPLETT: But, Mr. Chairman, is Mr. Guest referring to an exhibit that was not admitted into evidence during the cross of Mr. Sim?

CHAIRMAN GRAHAM: That is correct.

MR. GUEST: And why, why I'm doing it this way, Mr. Chairman, is that if it supplements or explains evidence, in this case he says his sheet says it's 21 but he's not saying it's right, I can supplement and explain the evidence with hearsay pursuant to Section 120.57(1)(c), which reads, "Hearsay evidence may be used for the purpose of supplementing or explaining other evidence."

CHAIRMAN GRAHAM: But he's already admitted that -- or he's stipulated to the fact that he'll say that the cost of it is $21.

MR. GUEST: Well, actually he didn't say that. That's why I'm doing this. What he said was that that's what it says, that's what we did. And I'm offering this for a little more than that, which is that's what the truth is -- not what he used, what the truth is. That what he used is true. That's what makes -- that's the difference.

CHAIRMAN GRAHAM: Do you know who prepared

this, that number, this $21?

THE WITNESS: It was -- it would have been done from our, from our program, our program experts. There was a review process of the costs, and they were updated when we didn't think the Itron costs were appropriate. I can't tell you the specific person who gave us the update. But we, we used what we thought were the appropriate market prices.

CHAIRMAN GRAHAM: So can you stipulate for Duke that that is probably a good number, $21?

THE WITNESS: Yes. That's why we used it.

MR. GUEST: Okay. But I still want it in.

CHAIRMAN GRAHAM: We've already stipulated $21 is the right number.

MR. GUEST: Okay. But what I'm -- what's a little bit different here is that this is Florida. This is Florida. I mean, if everybody is stipulating that the right price tag is 21, I'm all for it, but I don't think they are.

CHAIRMAN GRAHAM: I will stipulate for you that the blanket is $21.

MR. GUEST: Okay. Okay. That's it.

BY MR. GUEST:

Q All right. So let's press on. So the next item is -- let's go over on our hot water heater

blankets, that's -- it shows here payback in years is .46 -- is .67. That's the next -- what did you call it, magenta, is that that color -- column over there. See that .57?

A I see .67.

Q It's a six. All right. So that's eight months. .67 is eight months.

A Approximately.

Q So .67 is --

A Yeah. It was, it was done on a decimal basis.

Q Okay. All right. So it's about eight months is the payback. And the next item is I want to go to is -- let me go through all these at once and I'll move on to failing the rates test. We'll do that.

CHAIRMAN GRAHAM: Sounds good.

BY MR. GUEST:

Q Okay. So let's go and we'll just follow these lines. Okay. Let me do applicable households right now with this one. So you found that applicable households here, do you see the column over there that's just about three-quarters of an inch to the right of the full -- before the yellow, the yellow column?

A I see the applicable household column, yes.

Q And that's 310,312 applicable households. And then let's just, we can just keep on this one page. So

the next item is the aerator, the one above that. Your price tag was $4; right?

A That's what it says is we used $4.

Q And the payback period was .43 years, which I'm guessing is about five months roughly?

A Approximately.

Q Okay. And then the applicable households is 465,000, a little bit more.

A That's correct.

Q Okay. And then we go down to the next item, which is the low flow showerhead -- it's the top one, right -- and that one is $13?

A You lost me. Just let me make sure I'm on the same line.

Q Top one.

A So you're talking about measure number 405?

Q Shoot.

CHAIRMAN GRAHAM: That's correct.

BY MR. GUEST:

Q Okay. All right. Thank you.

A Okay. Thank you.

Q $13 price?

A That's what it shows, yes.

Q Payback is .55 months -- or .55 years, which I guess is roughly six or seven months, something in that

range.

A Yes, approximately.

Q And then your applicable household is, between the two it's 340,332; right?

A That's what it shows, 340,332.

Q And then the last one I have here is our heat trap, $17 is the price.

A That's what it shows, yes.

Q Okay. And then it's got a .62 year payback, which is just a little under eight months. Is that about right?

A Approximately, yes.

Q Okay. And then our, our heat trap is, applicable households is 398,972. Okay. Now that applicable households is actually for single detached households. Are you with me?

A I believe that's correct.

Q Okay. Let's just turn the page over here to multi-detached, which is now page -- the one, two, three, fourth page of the spreadsheet. Okay. And this one is a little trickier because it's so far away, but the hot water heater blanket numbers for the multi -- okay. We'll just do the top to bottom. The low flow showerhead is 222,291 applicable households; correct?

A I believe so, yes.

Q Aerator is, applicable households is 263,754?

A I believe that's correct, yes.

Q Pardon me?

A Yes.

Q Okay. The next one, the hot water heater blanket is 150,437?

A That's what it shows.

Q And the heat trap is 193,420; right?

A Yes. That's what it shows.

Q And let's just go to the last one right quick, manufactured housing, last page. And our applicability number is in magenta, and so low flow showerhead is the top one. That's 78,849.

A I show 76,849.

Q Thank you. I can't quite read that. The aerator is 105,020.

A Yes.

Q Okay. And the hot water blanket is 70,070 and our heat trap is 90,091.

A That's correct.

Q All right. So now let me turn to the next exhibit, which is how you treated these things. First, at the outset, these obviously all fail the two-year screen. They're all well under two years.

A I believe that's correct, yes.

Q Okay. All right. So the next item we're going to look at is -- yeah. So we're now on Exhibit 181.

CHAIRMAN GRAHAM: Okay.

BY MR. GUEST:

Q And so we've got these four items, and these are the items -- the first page are showing RIM. These are the RIM measures. That's the page for the upper right-hand corner. Do you need a minute to look at this?

A I'm just trying to find out -- you're on 181, I believe?

Q Yes, sir. And I'm on the first page. This is the one that's blown up so you can read it. Go ahead and take a minute to --

A I've got it.

Q Okay. And you understand that this is the page that shows what fails RIM.

A Yes.

Q Okay. And so all, all four of these -- the heater blanket, the faucet aerator, the low flow showerhead, and the heat trap -- all fail RIM.

A That's what it shows.

MR. GUEST: Okay. All right. How was that, Mr. Chairman?

CHAIRMAN GRAHAM: That was very, very efficient.

BY MR. GUEST:

Q Okay. Let's turn to -- we'd like to refer now to the exhibit that's in evidence now as Exhibit 141. Oh, oh, I'm sorry. Your exhibit is PSC-141. This is an excerpt, so we're going to mark this as 182.

CHAIRMAN GRAHAM: Okay. Yes, 182 is correct.

All right. So 182 will be 2013 Residential End of Use Study, Florida results.

(Exhibit 182 marked for identification.)

BY MR. GUEST:

Q I'm going to just turn and ask you a couple of questions about page 66. Just --

A I don't see a page number. I'm sorry.

Q I'm sorry. Let's see if I can -- oh, it's that tiny little number that's about three fingers from the bottom that's got the Bate stamp, and the last number is 66.

A Okay.

CHAIRMAN GRAHAM: DES-DSM 04066.

MR. GUEST: Yes, Mr. Chairman.

THE WITNESS: Thank you, Mr. Chairman.

BY MR. GUEST:

Q And just for the record, this is the 2013

Residential End-Use Study, Florida Results, by Duke Energy.

A Yes.

Q And just very quickly, we have our saturation rate here, low flow showerheads, you see total Florida is 37 percent, and the water heater wrap is 11 percent.

So now let me turn to -- I noticed that when you were asked the question about the two-year payback, you hesitated for a moment. And I'd like to turn to a question that was raised yesterday by the Chairman about folks that, that would just wait a long time with their incandescent lightbulbs to replace them but then maybe they would.

You actually looked at the question of the free ridership. You actually measured that in that lightbulb measure that the Chairman referred to, didn't you?

A I don't understand your question. Can you --

Q You actually made an assessment of the actual free rider, free ridership as to those lightbulbs the Chairman referred to. You actually assessed it -- Duke assessed it, didn't they?

A Can you give me a cite?

MR. GUEST: Sure. Let's put this in evidence, which is, this is going to be -- this is, this is a

piece of 135, again it's an excerpt, PSC-135, and it's called SACE's first response to staff, 009056, and I believe it'll be 183.

CHAIRMAN GRAHAM: And one more time, tell me what the description is on this one.

MR. GUEST: I'm sorry?

CHAIRMAN GRAHAM: What's the description of 183?

MR. GUEST: It's a direct testimony of Roshena M. Ham in the matter of Duke Energy Carolinas, LLC. Well, it's before the North Carolina Utilities Commission. That's the top line of that on our page.

MS. HELTON: You know, Mr. Chairman, this would be a lot easier if the Sierra Club had -- excuse me, I'm sorry -- SACE had used the cover exhibits like Commissioner Brisé had asked at the Prehearing Conference. And if they had listed a short title, I think it would be a lot easier for us to follow, or it certainly would be a lot easier for me to follow if they had done so.

MR. GUEST: We'll try to improve on that.

(Exhibit 183 marked for identification.)

BY MR. GUEST:

Q So are you with me?

A I see a Duke Energy Carolinas report, yes --

or testimony.

Q This is an excerpt. Okay. I'd like you to turn to page 17, which is probably about the fifth or sixth page in. The big title in that is called "Impact Analysis," and we're talking about compact fluorescent lightbulbs, and you see that in the fourth line in that table that says free ridership rate was 14 percent.

A That's on a Duke Energy Carolinas-specific program.

Q Thank you. So let me go on now to -- let me turn for a moment to -- may I have a moment? I think we're going to shorten this.

I'd like to turn to our rates test versus our TRC test for a moment and direct your attention to -- where's my list here, my list of measures? Let me turn to solar for a moment.

So you know that the statute says that the Commission is required, that is "shall adopt appropriate goals for increasing the development of demand-side renewable systems." You know that's the statute.

A Yes, I believe so.

Q Okay. Do you need the statute to look at?

A No.

Q Okay. So you actually aren't proposing any goal for increasing development of demand-side

renewables, are you?

A Duke Energy Florida does not believe that the current solar set-aside pilots should continue as they're not cost-effective. However, it has put forth a conceptual design of a program if the Commission sees fit to continue those set-aside dollars.

Q Okay. So, so you actually have some solar programs and your proposal is to eliminate them and reduce it to zero; is that correct?

A Our proposal is what I just said it was.

Q Okay. Your proposal is for a large scale solar facility; correct?

A Our proposal is, is a conceptual proposal. Obviously it would need to be worked out in the plan phase. But conceptually we believe an approach where it's a utility-owned, customer-sited solar facility would have the effect of creating that necessary development of demand-side resources as without having the cross-subsidization issues that currently exist with the existing solar set-aside pilots.

Q So is this pilot program -- that's not an increase, is it, in the, in the solar, is it?

A Can you repeat your question?

Q Your current program wouldn't actually increase demand-side renewables, would it?

A We believe the awareness that it would create, as well as the ability to allow customers to voluntary contribute and show their support for it, would have the effect of furthering and encouraging the development of demand-side solar.

Q But my question is in terms of kilowatt hours, it's a reduction, isn't it?

A I -- we haven't put forward any program design to make that analysis.

Q But it's one single facility.

A I don't believe that was ever spelled out in the conceptual approach.

Q Okay. All right. So other than your conceptual plan for something that's unspecified that's a, you know, central facility, you have no numeric goals at all; isn't that the right?

A We have -- we do not believe the existing goals associated with the current solar set-aside should continue. That's correct.

Q Okay. Now let me, let me -- I'm going to get the title right this time.

CHAIRMAN GRAHAM: Sure. Is there another handout coming?

MR. GUEST: Pardon me?

CHAIRMAN GRAHAM: Is there another handout

coming?

MR. GUEST: Yes.

CHAIRMAN GRAHAM: Let's just go ahead and start passing it out.

MR. GUEST: Okay. That's PSC-39, an excerpt. This is it. I'm sorry. And this is Duke Energy Florida Docket Number -- we know what it is -- Guthrie Exhibit HG-12.

CHAIRMAN GRAHAM: So you're looking to -- you're just passing out one of the exhibits that's already here?

MR. GUEST: Yes, just so people can follow along.

CHAIRMAN GRAHAM: Okay.

MS. TRIPLETT: And, Mr. Chairman, this is in the direct testimony, so I don't know that we need to -- but anyway.

CHAIRMAN GRAHAM: I was going to say I don't think we need to label it, but it's for ease of efficiency.

MR. GUEST: Okay. Okay.

BY MR. GUEST:

Q So I'd like you to look at those. I'm sure that you've heard me previously say that you only pass the RIM test if it's doing something to improve your

efficiency during the summer and winter peaks. You've heard me say that before.

A I believe you said something along those lines yesterday. Yes.

Q So let's turn to the first page and let's look at the residential measures. And I'd like you just to look those over and agree with me that each one of those measures deals with heating and cooling.

A I believe the primary impact of the measures will relate to heating and cooling, which consists of over 50 percent of customers' annual usage, I believe.

Q Now let me turn to the total drop from your technical potential down to your actual goals. You start out -- and here I'm referring to PSC-32. Should I hand that out, Mr. Chairman? We've got it for ease. It's right here.

CHAIRMAN GRAHAM: Is that one of the exhibits that we have here in front of us?

MR. GUEST: No. I haven't given you that one.

CHAIRMAN GRAHAM: Okay. Go ahead and hand it out.

MR. GUEST: And this is all of PSC-32.

While we're at it, let's do the next one. This should be my last exhibit.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: This will be PSC-40, same, same drill.

CHAIRMAN GRAHAM: For identification purposes, what you just handed us was HG-5, so we don't need to give it an exhibit number.

MR. GUEST: Okay. The other -- and 40 is HG-13.

CHAIRMAN GRAHAM: And 40 is HG-13. Okay.

BY MR. GUEST:

Q So let's just -- this is a big picture summary I'm asking you to give us. You look at energy efficiency, your technical potential is -- I'm sorry. I'm on the page that's Exhibit 32, HG-5, on the first page. Are you with me?

A Page 1 of 11?

Q Yes.

A Yes, I'm there.

Q Yes. Okay. So you see the highlighted -- is yours highlighted?

A No, it's not.

Q Okay. All right. Let's just turn to the top box of rows. Under energy efficiency in the lower left it says, "Technical potential for 2014 is 12,073."

A Yes.

Q Okay. And then go down to the renewables, at

the bottom left-hand corner the total is 13,737.

A That's what it says.

MS. TRIPLETT: Mr. Chairman, if we're going to read numbers off of exhibits, I mean, we're willing to stipulate that the number -- if we're going through the same exercise, the math exercise, I mean, I think we're willing to stipulate that the goals are lower than the technical potential, if that's the point of this. That would speed it up.

MR. GUEST: Well, it's showing a little more than that, Mr. Chairman.

BY MR. GUEST:

Q The total is 25,810, and on your rates test your goal is 184 gigawatt hours. Do you agree with that?

A The proposed goals are 184.

Q For the RIM test. And then the, the TRC, what ratepayers actually pay, test is 471 gigawatts.

A That's correct.

Q Okay. So for the rates test you are down to .71 percent of the technical potential; correct?

A Subject to check, I'll believe your math.

MR. GUEST: Well, it's just -- can we just get a stipulation? I think we had a numbers offer. I'll take it.

MS. TRIPLETT: Well, I don't have a calculator, so I think -- I mean, I can, we can all get the calculator and we can do the math.

MR. GUEST: Would you like a calculator, or can we just stipulate that it is? Do I need to -- I've got one of those, too.

CHAIRMAN GRAHAM: I think he said upon check, he's fine with that. If you want to give a --

MR. GUEST: I'm sorry?

CHAIRMAN GRAHAM: He said upon check, he's fine with that. If you want to give him the calculator, he can check it for himself.

BY MR. GUEST:

Q Okay. There you go. Can you use a TI-30?

A I'll give it my best shot.

Q We'll see if we were actually right, won't we? So your total was -- let's just start by saying 184 divided by 25,810.

MS. TRIPLETT: Mr. Chairman, can -- where is the 25? I'm not seeing a 25.

MR. GUEST: That's -- well, that was what you offered to stipulate to was that it was 25.

MS. TRIPLETT: Well, I was offering to stipulate to the fact that the numbers in the exhibits are what they are, but so I don't -- I just don't see a

25. I'm sorry.

MR. GUEST: Well, yeah. What's happening is where we are -- on HG-5 of Exhibit 32 under energy efficiency we have 12,073 as a total, and under renewables we've got 13,737 as our totals.

MS. TRIPLETT: Thank you.

MR. GUEST: Add those together, you get 25,810. And I asked the witness if he'd be kind enough to divide his rates goal of 184 by 25,810 and tell me if it actually is .71 percent.

THE WITNESS: Yes.

BY MR. GUEST:

Q Okay. Let's just quickly do the same exercise for your, what ratepayers actually pay test, TRC, and just divide 471 by 25,810.

A I'm getting about 1.8.

Q Yeah. 1.8 percent.

A That's correct.

MR. GUEST: Okay. If I can have a moment, I think we're going to wrap up right here.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: I have no further questions.

CHAIRMAN GRAHAM: Thank you very much. EDF.

EXAMINATION

BY MR. FINNIGAN:

Q Good morning, Mr. Duff.

A Good morning.

Q Nice to see you again.

CHAIRMAN GRAHAM: Sir, sir, you need to come up here to a microphone so we get you on the record.

MR. FINNIGAN: Mr. Chairman, thanks for letting me sit with the big kids.

BY MR. FINNIGAN:

Q Mr. Duff, you made a recommendation in your testimony about a conceptual study for solar.

A A conceptual pilot program, yes.

Q And that conceptual program had to do with utility scale solar?

A Utility-owned larger scale solar.

Q And what do you understand the difference to be between utility scale, larger scale solar, and distributed solar?

A The installed, the installed cost is generally lower.

Q Are there any other differences?

A Generally if a utility owns it, you can site it to reduce the costs on the transmission and distribution system.

Q Anything else?

A Those are the big ones, I believe.

Q Is it true that distributed solar is generally sited closer to the load that it serves rather than a central large scale plant?

A I guess I would need a little bit more definition on that.

Q Well, like if I buy solar panels for my house, it'll serve the load on my house and might even put some of the power back out to the grid if it produces excess power; right?

A It's behind the meter, so, yes, it's located where the load is located.

Q And in that instance there would likely to be fewer line losses than if you had some large scale solar plant where you had to transmit the power over some distance to serve load.

A I'm not a transmission expert to talk about line losses, so I can't really answer your question.

Q Have you had to calculate line losses or be familiar with them in the different roles that you've had at Duke Energy?

A General familiarity with line losses.

Q And is it your general familiarity with line losses that the longer power travels over a line, the more line losses that it suffers?

A I think in general, yes.

Q Okay. Would another difference of distributed generation versus large scale generation be the effect on power flows and voltage regulation?

A Again, not being an engineer, I can't give you a technical explanation, but, yes, I believe so.

Q Okay. And then would another difference be impact on avoided cost of transmission and distribution facilities? For example, let's say that at -- on a particular distribution circuit or at a particular substation there's a constraint where the, the load on that substation or the load on that distribution circuit is reaching capacity, and if there's distributed generation in that area, that can reduce the load and relieve that capacity constraint.

A I think in theory that makes sense, which is why we're talking about a community-sited project, yes.

Q But that's -- if there's one community-sited project, one large solar facility, that wouldn't have the same impact on several different smaller distributed solar units that are dispersed among different distribution circuits and different substations, would it?

A Again, without any specifics, I can't make an analysis. There is the case that one specific circuit that had it could actually have more benefit than if it

is distributed. So I can't really make any firm decisions based off of the, the question you posed.

Q But as a general proposition, would you agree with me that a large scale plant is only going to be connected to one distribution circuit and wouldn't have the same impact that several different distributed facilities would have because they would be connected to different distribution circuits?

A I think it's fair to say that it would have different costs and benefits to have a distributed, distributed solar versus a smaller single-sited facility.

Q Okay. And your conceptual study of solar, I just want to talk about some of the things that you might want to include in the study. So would it be reasonable that you might want to include things like the impact of cloud cover because cloud cover can affect the efficiency of solar?

A Again, I think that that would be worked out in the program plan phase, but it sounds like something that would be logical.

Q And you might want to look at something like tree cover because, like cloud cover, that will affect how solar performs.

A I'll take that, yes.

Q And another thing you might want to look at would be the tilt of the panels because depending on how the panels are tilted might affect their efficiency.

A Again, I believe that's correct.

Q And you'd also want to look at the geographic direction that they're sited toward in relation to how the sun passes overhead.

A That's logical and makes sense, yes.

Q And you might want to study that at different locations because the sun is going to pass overhead at different areas of the Duke service territory.

A Again, I think that it would -- you would need to look at it from a cost-effectiveness standpoint factoring in all the benefits and costs.

Q And some solar units have tracking technology so that they can move and follow the sun as it passes overhead?

A I'm not a technical expert, but that -- it sounds possible.

Q Have you, have you heard that there are such types of technology out there?

A Yeah. Yeah.

Q Would that be another thing you'd want to study?

A Again, we haven't gotten into the plan phase.

I think it would be something that could be considered, yes.

Q And then there are different types of solar cells, and would you also want to study the different kinds of solar technology?

A Potentially.

Q Okay. Well, let me ask you if you could turn to your rebuttal testimony at page 19.

A I'm there.

Q Now let me ask you to follow along with me beginning at line 5. You say, "The Intervenor witnesses argue that DEF's (and the other utilities') analyses do not include all the benefits of solar, but they admit that such benefits have not been calculated specifically for Florida. The Intervenor witnesses therefore do not offer alternative calculations of the cost-effectiveness test using additional benefits on the solar side, because they have not quantified the specific benefits they claim should be attributed to solar." Have I read that correctly?

A Yes.

Q Okay. Did Duke Energy do a study for Florida quantifying the different factors that we've just described?

A We used our, the known assumptions for solar

in, in the assessment of the cost-effectiveness.

Q I was wondering if Duke Energy did a study specific to its Florida service territory which measured the different types of characteristics that we were just discussing?

A Which -- can you -- which characteristics?

Q Well, things like the impact of solar on power flows, the tilt of the panels, the cloud cover, those kinds of things?

A We're participating in a number of studies through the research and development part of the, of the, of the current set-aside pilots, but I don't believe those results are final yet.

Q Okay. So you criticize the Intervenors for not doing a study that measures the specific benefits of distributed solar in Florida, but yet Duke has not done such a study, or at least the results are not final yet.

A The intent wasn't to criticize. The intent was to point out that we used the best information that we have. And while they made suggestions, they didn't provide any additional information to use.

Q Well, when you say we used the best information we have, you don't have any information on Florida, do you? You said it hadn't been finalized yet.

A I said the DEF Florida-specific information

that we have been working with EPRI on through part of our research and development program has not been finalized. That's correct.

MR. FINNIGAN: That's all I have. Thank you.

CHAIRMAN GRAHAM: Thank you, sir.

Staff.

EXAMINATION

BY MS. TAN:

Q Hello, Mr. Duff.

A Good morning.

Q As part of your testimony you discuss the impact of changes to building codes and appliance efficiency standards; is that correct?

A Yes.

Q Can you turn to Exhibit HG-5 of your direct testimony?

A Yes.

Q Subject to check, would you agree that changes in the codes and standards have reduced Duke Energy Florida's technical potential for annual energy by almost 15 percent from the last goal setting proceeding?

A Subject to check, that looks about right, yes.

Q Okay. And, also, what type of programs are most heavily impacted by the changes in codes and regulations?

A There are -- it's pretty much across the board with respect to HVAC programs; lighting programs, as was mentioned yesterday. The ease of standard has moved the standard goal from 60 to 43 watts. You've seen HVAC move -- is in the process of moving from SEER 14 to SEER 15 being the standard. So it's, it's across the board, I think.

Q Okay. Thank you. And with the impact of the result of both the elimination of the measures that are currently mandated and a reduction in the incremental savings from changes to the baseline what would the impact be?

A Can you repeat the question? I'm sorry.

Q What would the impact be of the result of both the elimination of measures that are currently mandated and a reduction in incremental savings from changes to the baseline?

A The elimination of measures that are currently mandated?

Q Correct. So current -- what would the impact of current codes and reduction of incremental savings from changes to the baseline -- would there be an impact?

A I guess I'm still struggling with your question. I'm sorry. So you're saying -- when you're

saying mandated measures, what are your mandated measures?

Q Well, for example, the baseline would be SEER 14.

A Okay. So, yeah. Currently it's -- the base, the baseline is SEER 13 for the rest of this year and then it moves to SEER 14, yes.

Q Yes. So is that -- so the 15 percent represents the, 15 percent -- I'm sorry. One second.

CHAIRMAN GRAHAM: Tell you what, it's about time for our two-hour break for our court reporter, so let's take a five-minute break and come back here at, by that clock back there, 11:30.

MS. TAN: All right. Thank you.

(Recess taken.)

CHAIRMAN GRAHAM: I have a quorum. Staff, you have the mike.

EXAMINATION

BY MR. MURPHY:

Q Mr. Duff, this is Charlie Murphy for the Commission.

A Good morning.

Q Good morning. We're going to move on from that last set of questions. And would you have a look at Exhibit HG-13?

A Yes. Which page?

Q Page 1.

A Okay.

Q And does this exhibit reflect the company's projected achievable DSM savings assuming use of a TRC-based portfolio?

A That's correct.

Q And now would you look at Exhibit 1, HG-1.

A I'm there.

Q Does this provide Duke's proposed annual goals associated with a RIM portfolio?

A It does.

Q Can you tell us what the company's annual DSM goals would be based on a TRC portfolio?

A Not off the top, not off the top of my head. I would have to, have to do some math. It's based off of an adoption curve when customers come on and participate.

Q Is that something that -- how long does it take to do such a thing?

A It could probably be done in a couple of days or quicker. I mean, I can't do it right now.

Q Right. If there's no objection, could you provide that as a late-filed exhibit?

A Yes.

MR. MOYLE: Yeah. Well --

CHAIRMAN GRAHAM: I hear objections coming. Go ahead, Mr. Moyle.

MR. MOYLE: I'll go first because I have a thing with the late-fileds. And, and we're fine with him preparing that, but we'd like to see it and have the opportunity, if need be, to ask questions probably informally. We just don't want something coming in that we've never seen and don't have any opportunity to ask questions about. So I guess we would interpose a soft objection on that basis. But if we don't have any issues after reviewing it, we'd be okay.

CHAIRMAN GRAHAM: How do you, how do you -- explain to me, how do you anticipate asking questions?

MR. MOYLE: In -- I think I could talk to the company and talk to the witness informally and --

CHAIRMAN GRAHAM: Just so he can walk you through the information.

MR. MOYLE: Yeah. So I can understand what it is. And if we need to put something in the record by way of stipulation, we can. You know, I know he wants to go and leave, so we'd have an issue there. But I think we could potentially work it out through stipulation to certain things.

MR. GUEST: Well, I'm perfectly happy with

opening the late-filed exhibit door. But if it's open for them, we'd like it open for us too.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: Fair enough?

CHAIRMAN GRAHAM: I just, I was just listening to your objection.

MR. GUEST: Pardon me?

CHAIRMAN GRAHAM: I was just listening to your objection. And you said if it's okay with them, then -- if it's -- you'll agree to theirs if they agree to yours is what you're saying.

MR. GUEST: That's right. We may -- we have some issues that have kind of floated up through this thing that we are not fully prepared on. If we could do the same thing, we'll do the best we can to get it done quick.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: We're all right with that.

MR. BREW: Mr. Chairman?

CHAIRMAN GRAHAM: Yes.

MR. BREW: I have generally strong reservations as well about late-filed exhibits coming in that nobody has had a chance to vet. Could I just ask staff again to repeat exactly what it is you're looking for?

MR. MURPHY: We're looking for proposed annual goals based on the TRC portfolio.

MR. BREW: Are you asking for a calculation?

MR. MURPHY: Yes.

MR. BREW: Okay. So the only thing you're asking for is the calculation that people could check?

MR. MURPHY: Yes.

MR. BREW: If it's limited in that fashion, I don't have an objection. My concern is having something come in that's totally new that may be -- you know, that the parties haven't had a chance to examine after the record is closed.

CHAIRMAN GRAHAM: Well, I, for the most part, have a problem with late-filed exhibits. But since this is my staff and they're going to be the ones writing my recommendation --

MS. TRIPLETT: Mr. Chairman, before -- I know where you're going, but I just want to make sure I understand, because I thought that there is -- one of the exhibits speaks to at least the TRC -- are you asking to take from the economic potential to the achievable? Is that what the, what it would be? I just want to make sure I understand what the --

MR. MURPHY: We're looking for annual goal numbers, summer and winter. We're looking for the

equivalent of HG-1 based on TRC instead of RIM.

MS. TRIPLETT: Okay.

MR. SAYLER: Mr. Chairman, Erik with the Office of Public Counsel. HG-13 discusses Duke's TRC and Participant test goals. Is that what staff is looking for to be done on an annual basis?

MR. MURPHY: Yes.

MR. SAYLER: Okay. Thank you.

CHAIRMAN GRAHAM: Mary Anne, if there was an objection after this late-filed exhibit came through, is there a way of handling that as far as if I decide to eliminate it from the record?

MS. HELTON: And I apologize, Mr. Chairman. I was a little bit late coming in, so I did not hear the beginning of the discussion. But if I understand your question correctly, what you can do is you can set a time by which the late-filed exhibit must be filed if it's not going to be produced during the time we're all sitting here together in the hearing room, and then you can give us time certain by which objections to the exhibit must be filed, and then you can enter a written ruling afterwards.

CHAIRMAN GRAHAM: Sounds good to me.

How long would it take you to put that together?

THE WITNESS: I'll need to talk with my team, but a few days probably to be safe. It could be sooner, but I need to talk with them first.

CHAIRMAN GRAHAM: So a few days is -- we'll go with a week from today.

THE WITNESS: I think that's fair, yes.

CHAIRMAN GRAHAM: Okay.

MR. GUEST: Let me -- may I raise a procedural issue here?

CHAIRMAN GRAHAM: Sure.

MR. GUEST: Is that there's a wide scope of different objections that could be made, most of which are curable. And if we have an objection that could be cured, we would like an opportunity to do that. For example, if we had a summary exhibit, you could object to a summary exhibit on the ground that you didn't have reasonable notice, or as our government report illustration, we might want to establish that that's, that's a government report or something like that. So we would like to have -- if we're having objections, we would like to have a clear opportunity to cure them. Is that the understanding?

MR. BREW: Mr. Chairman, I would have strong objections to --

CHAIRMAN GRAHAM: Wait. I listened to the

objections, I have listened to what the staff required, and I guess I made a decision that I'm dealing with the objections that I need to deal with, and I want for staff to have what they want in front of them. If you guys -- when this information comes out, you'll be given, well, let's just say three days, four days. How long do you need to ask questions and decide if you want to object or not? Another week?

MR. MOYLE: Yeah. A few days, I think, would --

CHAIRMAN GRAHAM: Okay. So if we're going to have this stuff back by Wednesday, then I would say by the following Monday -- somebody help me -- what's that date, two weeks from yesterday?

MR. GUEST: The 4th.

CHAIRMAN GRAHAM: The 4th. Objections need to be in by the end of the day on the 4th and I'll make my ruling.

MR. GUEST: And we'll have an opportunity to cure them after the objection is made.

CHAIRMAN GRAHAM: I'm sorry?

MR. GUEST: That, that time, it'll give us time to cure objections, if there's an objection that can be cured.

MR. BREW: Mr. Chairman, what I'm hearing is

the request not only for staff but to other parties to supplement the record.

CHAIRMAN GRAHAM: No. No. No. The only thing, the only late-filed exhibits I have coming right now are from staff.

MR. BREW: Right, and I'm fine with that. But I was hearing a broader request, and that's where I had a concern.

CHAIRMAN GRAHAM: No. Right now the only late-filed exhibit that I am accepting is from staff.

MR. MURPHY: Mr. Chairman, if -- is there any possibility that Duke could have this prepared by the time Mr. Borsch is testifying? And I don't know how complicated this calculation is.

MS. TRIPLETT: I don't either, but based on what I hear, I'm not feeling comfortable that we can even -- I can even make a promise like that. And then if the intent is to ask Mr. Borsch about this, he is not going to have the foundation to answer any questions. I'm not trying to be difficult. I just think that would -- he's our planning and he does the planning. He does not do the rest of the goals like Mr. Duff does. So I don't -- I'm not sure that's going to --

CHAIRMAN GRAHAM: Well, my understanding is staff is asking him to do calculations based on numbers

that are already here in the record. Those numbers aren't going to change and that calculation is going to be all based off these numbers; is that correct?

THE WITNESS: It will be based off of, it will be based off of the measures included in HG-13, yes. But figuring out how those measures are adopted over time is how you determine the annual goals, and that takes a little bit of time.

CHAIRMAN GRAHAM: Okay. But --

MR. GUEST: Well, but I think that's the core issue is that it really is not simply a computation. He's cranking the machine until the mice stop squealing is what he's doing, I think.

CHAIRMAN GRAHAM: All right. We're going to get his late-filed exhibit on Wednesday. I want objections by that following Monday, which is the 4th, and I'll make a determination from there.

MS. TRIPLETT: Yes, sir.

MR. MURPHY: Thank you.

BY MR. MURPHY:

Q The company's proposed goals represent a decrease from the current level of savings achieved by existing demand-side management programs; is that correct?

A That is correct.

Q If the Commission approves the company's proposed goals, what type of impact would that have on your existing programs?

A It's, it's hard to tell. Obviously we will look at developing programs around the cost-effective measures. But when you get in the program plan phase, it's really about trying to bundle measures together and put them in the most cost-effective approach to reach customers. So I think the, as you pointed out, the goals are less than the current programs, but we're going to design the programs to be as attractive to customers as possible and be as cost-effective as possible with the measures at hand.

Q So can you say whether or not rebates for existing programs would decrease?

A I can't -- well, I mean there are certain, there are certain measures that will no longer be cost-effective, and those measure rebates likely would be eliminated. But obviously until we start bundling them together and looking at the specific delivery of those measures, I can't give you a specific answer.

Q Okay. Thank you. Looking at your rebuttal now, in your opinion, will all customers install measures with short payback periods because it's in their economic interest to do so?

A No, not all customers, which is why we feel that the two-year payback is an appropriate and fair screen because it doesn't eliminate all customers. What it's doing is it's eliminating potential in the setting of goals. We still will have a strong education program out in the market trying to get customers to adopt low cost, less than two-year payback measures. It's just those don't necessarily make sense from a cost-effectiveness standpoint when you're, when you're setting your goals.

Q Could you describe your education efforts? Could you elaborate on that?

A Sure. We, we reach out through TV, print, radio to customers to inform them. We do, we do presentations at trade shows out in the community with vendors to make them aware of different options. Our audit program is a great outreach example where we go in and we give customers things, tips that they can do within their home that, like, for example, not using the heat, the heating setting on your dishwasher. That's an energy saving tip. But we have 101 -- or 100 things, I'm sorry, to save energy. That's one of our common themes that we communicate. And then we have a pretty strong web presence. We give away things like calendars that talk about changing filters on time, as well as

having a monthly theme that's seasonal to provide customers with energy saving opportunities. And then on those audits, when we do do the audit, customers are provided with two CFLs.

Q Thank you. Changing gears a little bit, you're familiar with the testimony of Witness Mims?

A Yes.

Q Regarding evaluation, measurement, and verification?

A Yes.

Q And that it should be used for screening free riders?

A Yes.

Q Could DEF have used an evaluation, measurement, and verification methodology to screen for free riders in its proposed programs in this docket?

A In my opinion, no. Mr. Guest showed a Duke Energy Carolinas EM&V report for CFL. That's a perfect example of something that's not applicable. That program measurement and verification was done around a specific program designed on a specific sample of customers within Duke Energy Carolinas' service territory, and so you need to consider those factors of program design before you determine free ridership. So to take an out-of-state or even another utility EM&V and

say it's applicable is not appropriate, because goals are set upon measures, not upon program design.

Q Well, putting aside whether it's come from another state, could you have done it here in this state appropriately in this docket?

A I don't believe so.

Q And why would that be?

A Again, because you would have had to, you would have had to find an EM&V for every single measure to apply, and each measure could have a different EM&V from a different state, and so it's very challenging.

As we pointed out, there's a lot of different characteristics. Earlier I said heating days by mistake, but it's cooling days. Florida has the most cooling days. And so to apply something from a state that doesn't have a lot of cooling days to a state that does doesn't make sense.

MR. MURPHY: That's all I have. Thank you.

CHAIRMAN GRAHAM: Thank you, Staff.

Commissioners. Commissioner Balbis.

COMMISSIONER BALBIS: Thank you, Mr. Chairman. And thank you, Mr. Duff, for your testimony here today.

I have a few questions. I want to start with a little bit about your role. So you cover all of Duke Energy in all of the areas; correct?

THE WITNESS: That's correct.

COMMISSIONER BALBIS: Okay. And in separate proceedings before this Commission there was a lot of discussion on some of the benefits that at the time Progress Energy Florida customers would get from the merger, and one of the specifics was access to all of the additional information, specifically conservation programs. What conservation programs and/or information was assessed from Duke Energy that Florida customers benefited from in this process?

THE WITNESS: We're looking at program design. Obviously with a lot of the programs you have existing contracts with vendors that need to roll off. But we believe there's an opportunity over time to continue to find, find vendors that will give us volume discounts and leverage those programs across multiple jurisdictions. So to date I don't think there's been a whole lot of changes just because of the legacy nature of the programs, but our intent is to leverage the scale and scope as well as the expertise. You know, we look at our program designs in some jurisdictions and try and find, and try and find commonality. The low income neighborhood program that's offered here in Duke Energy Florida is one that we have in all of our service territories and is a perfect example where we're in the

process of trying to leverage that scale with vendors in an RFP process to get better pricing for Florida customers.

COMMISSIONER BALBIS: Okay. Thank you. And then now I want to focus on the issue of the two-year screen, because obviously there's a lot of testimony on that, a lot of questions on that. And in both your direct testimony and your rebuttal testimony and here today you've used the term would, that customers would employ -- measures they would employ and they should employ. And as an example of -- that you used as to what customers would be doing anyways was the solar pilot program; correct? You indicated on page 50 of your testimony that less than half received the rebate.

THE WITNESS: Yeah. Yeah. The -- with respect to the solar program, there were -- less than half of the installed kWh or kW were coming from participants in the pilot.

COMMISSIONER BALBIS: Okay. So and -- so that would be an example of a free rider where they would be doing it anyways.

THE WITNESS: Yes.

COMMISSIONER BALBIS: And that was about, in that example, about half.

THE WITNESS: Approximately, yes.

COMMISSIONER BALBIS: Okay. And then there's, what I think is the difference, is what customers should be doing, and you've discussed that several times. What would be an example of a program or a decision a customer should be making?

THE WITNESS: I, I can give you a perfect, a perfect anecdote with respect to the installation of a, of a lightbulb. I'm very mindful of energy efficiency, so I brought home CFLs and I installed them, and I found that my wife moved them into the closet. She should have kept them in the high use sockets but didn't like the quality of the light. I've moved them back since and had the discussion with her, but that's a perfect example. Education is important. You must educate the customer on how to make the measure actually deliver the savings that it's supposed to.

So to answer your question, a perfect example of should is they should install it in a high use socket. Is that necessarily the reality? No.

COMMISSIONER BALBIS: Okay. Would -- another example would be a customer should install a hot water heater blanket -- that's been discussed at length -- but for whatever reason, whether they can't afford the initial price, they're just not doing it?

THE WITNESS: That would be, that would be an

example. That would be an economically rational decision to install it.

COMMISSIONER BALBIS: Okay. But those -- if a measure passes the RIM test and the Participants test, then it is cost-effective to all parties, those who participate and the general body of customers; correct?

THE WITNESS: That's correct.

COMMISSIONER BALBIS: And then you've removed those measures because they didn't pass the two-year pay -- the two-year period, the two-year test.

THE WITNESS: No. We -- the way Duke actually, the way Duke actually modeled it is when you got down to the achievable potential, we wanted to maximize the number of measures that were considered. So what we did was we said that we would take a measures incentive down to the point that it would be a RIM 1.0, not going to that full year two-year payback that would cause it to be excluded.

COMMISSIONER BALBIS: Can you go over that one more time?

THE WITNESS: Sure. So when we, when we got to the economic potential, we took, we took the measures, we applied the, we applied the program costs, and then we looked and said what passes the cost-effectiveness tests, RIM and Participant?

We could have done the, we could have applied the two-year, the two-year screen and said we're going to pay up to a two-year incentive, but that would have caused more measures to fail the RIM test. So we did it in a manner that allowed more measures to get included and maximized the size of the goal by saying, no, we're not going to force all the way to a two-year payback incentive. We're going to force to a RIM 1.0 as our first level screen rather than the two-year payback, which would have -- could have thrown out more measures.

COMMISSIONER BALBIS: Okay. So you did not throw out any measures that, that -- you didn't apply the two-year screen, so the only measure you threw out was you made it pass the RIM test then; correct?

THE WITNESS: Once we got through the achievable potential, which -- through the economic potential, rather, which also had the two-year screen, then you put in the incentive and the program costs in determining the achievable potential. We did not let the incentive be, reach a two-year payback kick out if it would cause it to fail RIM.

COMMISSIONER BALBIS: Okay. And I guess my concern is, again, those customers that should be making a decision or participating in a program, and I'm struggling with whether or not to have a goal associated

at least for a portion of those, would provide an incentive to the company to continue those programs. And I know we're not approving programs now, that's the next phase, but that's one of the things we're faced with is, is how to set those goals. So that's kind of what -- where I'm going with this.

And then to change gears one more time, you indicated in a response to cross-examination about the Participants test analysis. And I think I may have misheard you, but could you confirm that you're incorporating the savings to the participant on their electric bill in performing the test?

THE WITNESS: Yes. Yes. The Participants test is calculated in the manner prescribed where it includes the customer's bill savings.

COMMISSIONER BALBIS: Okay. And my last question, which I asked the previous utility, the EPA's propose 111(d) rule indicated in one of their building blocks that Florida utilities can achieve a 10 percent conservation goal, and yet your analysis showed much less than that. Why?

THE WITNESS: First, those rules haven't necessarily been finalized. In terms of the methodology that was used, I don't think they've gone down to an achievable potential with respect to how those goals are

focused. I haven't given a detailed look at their analysis, but I think that the company's proposed goals were determined through the transparent and prescribed process that we follow to set goals.

COMMISSIONER BALBIS: Okay. Thank you.

CHAIRMAN GRAHAM: Commissioner Brown.

COMMISSIONER BROWN: Thank you, Mr. Duff. A follow-up to one of staff's earlier questions, and I appreciate your testimony and, and lightbulb example as well.

If we approve the DSM goals as Duke has proposed, can you say how many programs that are currently in place would be cut?

THE WITNESS: I can't say how many programs would be cut. I think program modification and program creation will be part of the next, will be part of the next phase. So it's hard for me to say which programs would stay and which programs would go. I would say almost all of them would be modified.

COMMISSIONER BROWN: From a cost-effective --

THE WITNESS: Yes. In order, in order to pass cost-effectiveness.

COMMISSIONER BROWN: Okay. You talk about set-aside dollars for the conceptual -- by the way, switching gears here. Sorry.

You talk about setting aside dollars for the conceptual solar PV community project.

THE WITNESS: Uh-huh.

COMMISSIONER BROWN: What -- I don't know if it's any -- I couldn't find it anywhere. What would that amount be?

THE WITNESS: I think that would be at the Commission's determination. I think our thought was that it would be the existing $6.5 million number that was out there.

And, again, I just want to make sure that I was clear earlier when I was talking to Mr. Finnigan, too. You know, we're not proposing one single utility scale development. This is customer sited or community sited utility owned so that all customers are benefiting from the asset, both from a, both from an understanding data, as well as from the fact that the benefits of the solar will be flowed through to customers through, through lower fuel costs.

COMMISSIONER BROWN: I understand the conceptual general guidelines that you proposed.

THE WITNESS: Okay.

COMMISSIONER BROWN: So I get that. But what amount of the demand-side would that potential project capture --

THE WITNESS: We have, we have not done that.

COMMISSIONER BROWN: -- conceptually?

THE WITNESS: Yeah. We haven't gotten to that point. I would say that, depending, depending on where it ends up in terms of the plan, I would say that it would deliver at least the same, if not more than what the current solar set-aside dollars are delivering.

COMMISSIONER BROWN: Okay. Thank you.

CHAIRMAN GRAHAM: Commissioner Brisé.

COMMISSIONER BRISÉ: Thank you, Mr. Chairman. And, Mr. Duff, thank you for your testimony this morning.

I'm going to sort of go big picture. Going back to page 10 on your testimony, you have a chart out there that's talking about the reduction of residential electricity usage over the last decade. Can you talk about specifically for Florida, how Florida reflects against what, what the national trend is and what the factors are in Florida for that reduction?

THE WITNESS: I think you see a lot of things. Again, this is, this is composite data with the exception of the Duke Florida number, which you see is the minus 13.8 percent. I think that you do, that you do see the State of Florida's aggressive, aggressive adoption of building codes and standards in excess of

what's being done at the federal level; you see the federal level; and then I do think you see the economic times. You know, I think that you look at Florida, which has a large tourism industry, which has a lot of temporary residents, and you see things that the economy potentially could have a more significant impact on Florida. But I think the biggest thing is just the general -- Florida's long-term commitment.

In all of the jurisdictions that I work in, Florida has the longest term commitment, which it should be applauded for. The fact that you've got customers who have been getting energy, utility-sponsored energy efficiency programs for 30 plus years is a testament to the state. And so the ability to have that knowledge base and exposure to programs I think is a large contributor to the fact that usage is going down in the State of Florida.

COMMISSIONER BRISÉ: Okay. I'm going to change gears completely. Going to your Exhibits 2 and 3, and in there you refer to, to the RIM and TRC. And so I'm trying to understand the fact that there is such a negligible difference in terms of the impact to consumers in terms of the rate or price. Can you expand on that for me, please?

THE WITNESS: So which, which specific exhibit

were you looking at? I'm sorry.

COMMISSIONER BRISÉ: Okay. Exhibit HG-3.

THE WITNESS: HG-3.

COMMISSIONER BRISÉ: And HG-2, I believe. So, you know, just look at the two, first year and then last year, you look at 1,820; and then you have 1,829 for 2015; and then you look at year '24, you have 2,247; and you have 2,246 in '24. So since the difference is negligible --

THE WITNESS: It's, it's -- it definitely gets down over time. I think part of that is what, what you're seeing, the reason it goes down over time is Duke Energy, a lot of the measures that are in the RIM portfolio you're seeing are existing measures that customers are comfortable with. So we're assuming a pretty fast adoption of those measures.

The newer measures, it's going to take customers more time to ramp up, get accustomed and knowledge about those and install those. So I think over time that's what you're seeing is that it takes, it takes more time for them to get accustomed to those measures, which is why you have more upfront cost. And to the Commission staff's questions earlier, why, if you look at the annual savings number in HG-1, you'll see that there's more, there's more savings that are

occurring in the early years than the late years.

COMMISSIONER BRISÉ: Okay. And so final set of questions. If you go to Exhibit 182, which is the DEF's response to Sierra Club's second production of documents, this --

THE WITNESS: Yeah.

COMMISSIONER BRISÉ: And looking at DEF DSM, I guess the Bate stamp is 04068 and 04069, sort of addressing the whole solar component there.

If you can address the cross-subsidy that you referenced with respect to the pilot programs and how that will not occur with the potential conceptual programs that you have in mind.

THE WITNESS: Sure. Sure. Well, one of the things that we've, that we laid out in our testimony was the fact that you see that the majority of customers that are installing solar panels make more than -- have more than the average income, more expensive homes. So you have rather affluent people who can afford the upfront capital costs of the solar who are participating in the program. And so what we're saying is that you're seeing the solar set-aside dollars going to those customers who are then realizing the benefit.

Under the approach that we're talking from a conceptual standpoint, the utility would own it. It

would be out in the community so that customers could see it and they could see the data come from it. They would have an opportunity to show their support by contributing. Those dollars would then be used to reduce the ECCR rider from their voluntary contributions.

But the key is that since it's utility owned, all of the, all of the energy and capacity benefits will be flowed through to customers through the fuel clause because they'll have lower fuel costs since all customers are benefiting from it rather than just the single solar side pilot participant.

COMMISSIONER BRISÉ: Okay. So going to the current program, what is the average cost for the current participant, if you know that, and what is the rate impact to individual ratepayers who are non-participants?

THE WITNESS: I don't have the individual, the breakdown of the ECCR for the solar set-aside pilots, what that's contributing to rates. Obviously, it's the portion of the annual spend $6.5 million budget that's being flowed through the ECCR.

COMMISSIONER BRISÉ: Okay. And so, finally, what are the benefits for the general body with the solar pilots as they stand right now?

THE WITNESS: I think the benefits are that it has given us some insight, which is what I believe the Commission's intent was, into, into who's putting on solar panels, what the installed costs are, as well as to just raise general awareness. I think that now is the time to look at it and say let's try and, let's try and continue that, but let's make it more cost-effective and let all customers benefit from it, which is consistent with the ECCR, which says that you need to consider both the benefits to the participant as well as the non-participant.

COMMISSIONER BRISÉ: Okay. I think that's all I have for now, Mr. Chairman.

CHAIRMAN GRAHAM: Okay. I have a few questions.

The first question, I guess, is more of a curiosity question. I think Commissioner Brisé touched on it a little bit.

Mr. Brew gave you an Exhibit 172, which is the consumption versus summer peak. And I'm just looking at that graph, how it split the way it did. And I guess from the, from your direct testimony and from the questions -- the answer you just gave Commissioner Brisé, I assume most of that is from the building codes have changed that have that kind of significant impact.

THE WITNESS: I do think the building codes have a significant impact on it because you're talking about when, when you're changing a building, you're getting 24/7 savings around, around it. It will have an impact on peak, but not as much as it will since it's a 24/7 measure. When you increase the shell of a building, it's going, it's going to deliver those energy savings around the clock, not just at the peak.

CHAIRMAN GRAHAM: And so the next one, which was the customer, and it looks like it's about a year lag. This one is 2011; the other one is like 2012 where you see that separation happen. And is that just because of also, again, codes or slack in the market?

THE WITNESS: I think, I think, I think it's driven by multiple factors. To isolate it and say it was simply driven by codes would probably be an overstatement. I think the economy as well as codes as well as, as well as the customer interest in becoming a aware of ways to reduce their energy and get those, get those bill savings -- you know, obviously we have peak demand reduction programs through our, through our EnergyWise program in Florida which delivers savings to customers, but those are only to the participants as well as the system benefits to customers. But customers can see bill savings associated with taking those tips

that we're educating them on: To install showerheads; to install, install CFLs; to, you know, caulk their windows. Those are the kind of tips that we think, because of the economic conditions, are really starting to drive that energy usage down.

CHAIRMAN GRAHAM: Well, that's a perfect segue to my next question. Tell me about some of the educational programs that you have as far as outreach to both residential, commercial, and industrial.

THE WITNESS: Well, our, our, our largest outreach would obviously be the audits, which are required for any customer to participate. And we have a number of different audits: We have an online, we have a phone, we have a free, and then we have a walk-through that costs $15 which is a little bit more intensive. But those audits really give us the chance to go into customers and talk about not only what we see from a potential to participate in our rebate programs, but it also gives us an opportunity to tell them, hey, don't put that CFL in a closet because it's not going -- it's going to deliver you a few minutes of savings a day rather than putting it in a socket that's utilized a lot. As well as just telling them, Hey, you know, you can put in a low flow showerhead. Technology has come a long way, it won't impact you, and it can deliver

savings. And these are things that you can tell them and tell them the costs, and it really resonates with them. And then we give them leave behinds: We give them magnets, we give them calendars, things to remind them to be cognizant, turning down, turning down your thermostat, not using the, the heating setting on your dishwasher. All of those things deliver savings that customers see.

CHAIRMAN GRAHAM: Now how is that information disseminated? I mean, does somebody have to call you for an audit or is it --

THE WITNESS: They do, but we also have, we also do have radio and TV spots, as well as going out into community for community action, for community action events and trade ally shows to make sure that our, that some of the vendors out there know about what can be done so that they can offer that to customers.

CHAIRMAN GRAHAM: All right. I'm looking at some of your old or current programs. One is the Low Income Weatherization Assistance. Can you tell me what that is?

THE WITNESS: That's a program that I kind of mentioned earlier when I was being questioned by the Sierra Club. That's one where we work with non-profits who are going out to do low income, low income work in

homes, and we can either provide a rebate to lower the cost of what they're installing for customers or provide it to the customer themselves. And it's a set rebate amount, as opposed to the neighborhood program which are more free, low cost, no cost measures.

CHAIRMAN GRAHAM: So that's mainly for people that own homes.

THE WITNESS: Generally, yes.

CHAIRMAN GRAHAM: And what about the solar water heater low income?

THE WITNESS: The solar water heater low income is a program that basically is targeted at providing low income customers with solar water heating. And we've worked with Habitat for Humanity to get those, those solar water heaters installed in the Habitat homes. We haven't seen as much, as much uptick in that program as we have in some of our other set-aside programs.

CHAIRMAN GRAHAM: And the last one I see on here is the Neighborhood Energy Saver.

THE WITNESS: Yes.

CHAIRMAN GRAHAM: Explain to me what that's all about.

THE WITNESS: Sure. We go out and work with community agencies such as churches or neighborhood

associations to get some awareness of a, of a general low income neighborhood and go basically door to door trying to install these measures to help those customers: CFLs, door sweeps, weather stripping, faucet aerators, showerheads, refrigerator coil brushing to clean them off so the refrigerators work more efficiently. And then there's a huge education component that's a big outreach activity, because, again, you have, you can't just give tools, you have to tell how the tools work and how to get the most for the tools.

CHAIRMAN GRAHAM: So the things that you have in that program are pretty much the two-year payback stuff that you're not allowing in the other programs.

THE WITNESS: They are measures that do not pass the two-year payback. That's correct.

CHAIRMAN GRAHAM: And somebody else asked a question about making it a policy call if it's a one-year program, two-year program, three-year program. That's also conversely true if you want to make it a three-month program or six-month program; correct?

THE WITNESS: I think the converse would be true. Correct.

CHAIRMAN GRAHAM: Okay. That's all the questions I had.

Commissioner Balbis.

COMMISSIONER BALBIS: Thank you. I just have one follow-up, and it's concerning the solar pilot program and demand-side renewable generation. And currently Duke Energy customers can take advantage of the net metering rule that the Commission has in place.

THE WITNESS: Uh-huh.

COMMISSIONER BALBIS: And you're not proposing to eliminate that.

THE WITNESS: That's not part of this proposal at all.

COMMISSIONER BALBIS: Okay. And that program is where customers can get retail credit on their next month's bill on the energy they produce.

THE WITNESS: That's, that's how net metering works. Yeah.

COMMISSIONER BALBIS: Okay. I just want to make sure that -- because there's been a lot of discussion on eliminating renewable generation, but that rule will still be in place for customers.

THE WITNESS: No. This was -- this conceptual pilot is just really designed to take that next step and better use the dollars to eliminate the subsidies to what we've seen so far as being fairly affluent people and really get it to a point where we can continue to

encourage the development of distributed generation through this program that would benefit all customers.

COMMISSIONER BALBIS: Okay. Thank you.

CHAIRMAN GRAHAM: All right. Any more Commission questions?

Seeing none, rebuttal.

MS. TRIPLETT: No redirect, and I'm ready to move exhibits when you are.

CHAIRMAN GRAHAM: Redirect rather. Sorry.

MS. TRIPLETT: That's okay. I don't have any, so I can do exhibits.

CHAIRMAN GRAHAM: All right. Let's do exhibits.

MS. TRIPLETT: Okay. We would move hearing exhibits 28 through 44 into evidence.

CHAIRMAN GRAHAM: We're moving 28 through 44 all into the record.

(Exhibits 28 through 44 admitted into the record.)

Okay. Mr. Brew.

MR. BREW: Mr. Chairman, PCS would move Exhibits 172 through 176 exclusive.

CHAIRMAN GRAHAM: Duke, do you have any --

MS. TRIPLETT: Objections? No, sir.

CHAIRMAN GRAHAM: Thank you. And that was

172 through --

MR. BREW: 176.

CHAIRMAN GRAHAM: -- 176.

(Exhibits 172 through 176 admitted into the record.)

Sierra Club.

MR. GUEST: Exhibits -- sorry.

MS. CSANK: Mr. Chairman, Sierra Club moves Exhibit 177.

CHAIRMAN GRAHAM: Duke?

MS. TRIPLETT: No objection. I think it's already in the record. Thanks.

CHAIRMAN GRAHAM: Okay.

(Exhibit 177 admitted into the record.)

All right. SACE.

MR. GUEST: Exhibits 178 to 83.

CHAIRMAN GRAHAM: Duke?

MS. TRIPLETT: No objections.

(Exhibits 178 through 183 admitted into the record.)

CHAIRMAN GRAHAM: Okay. All right.

MS. HELTON: Mr. Chairman, were we going to label the late-filed exhibit, Exhibit Number 184?

CHAIRMAN GRAHAM: That works for me, if that's your suggestion.

MS. HELTON: That's my suggestion, Mr. Chairman.

CHAIRMAN GRAHAM: Okay. So 184 we will put down as -- do you have a title for that?

MS. HELTON: Staff's TRC calculation.

(Late-Filed Exhibit 184 identified for the record.)

CHAIRMAN GRAHAM: All right. Okay. I think we're done with this witness. Thank you very much.

MS. TRIPLETT: May he be excused, Mr. Chairman, from the hearing?

CHAIRMAN GRAHAM: We did your direct and your rebuttal, so I don't see a reason -- yes, you are excused. Travel safe.

MS. TRIPLETT: Thank you.

CHAIRMAN GRAHAM: Okay. Next witness is TECO.

MR. BEASLEY: Tampa Electric calls Howard Bryant.

Whereupon,

HOWARD BRYANT

was called as a witness on behalf of Tampa Electric Company and, having first been duly sworn, testified as follows:

EXAMINATION

BY MR. BEASLEY:

Q Mr. Bryant, would you please state your name, address, occupation, and employer.

A Yes. My name is Howard Bryant. I'm employed by Tampa Electric Company. The address is 702 North Franklin Street, Tampa 33601.

Q You were in the room yesterday when the Chairman administered the oath; is that correct?

A I'm sorry?

Q You were sworn in yesterday?

A Yes. I'm sorry. Yes.

Q Mr. Bryant, did you prepare and cause to be submitted on April 2nd of this year a document entitled "Prepared Direct Testimony of Howard T. Bryant" consisting of 57 pages?

A Yes, I did.

Q If I were to ask you the questions contained in that prepared direct testimony, would your answers be the same?

A Yes, they would.

MR. BEASLEY: I would ask that Mr. Bryant's direct testimony be inserted into the record.

CHAIRMAN GRAHAM: We will insert Mr. Bryant's direct testimony into the record as though read.

MR. BEASLEY: Thank you.

BY MR. BEASLEY:

Q Mr. Bryant, did you also prepare the exhibit that accompanies your direct testimony marked HTB-1 and premarked Exhibit 45 in the Composite Exhibit List?

A Yes, I did.

Q Do you have a correction to make to your rebuttal -- or your direct exhibit?

A Yes. I have two small numbers that need to change. On Bate stamp page 62, toward the bottom of the page it says, "58 total measures evaluated." That number should be 63.

And then the one other change is on Bate stamp page 64, toward the bottom of the page as well it says, "90 measures, total measures evaluated." That number should be 91.

BEFORE THE PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

HOWARD T. BRYANT

Q. Please state your name, address, occupation and employer.

A. My name is Howard T. Bryant. My business address is 702 North Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Manager, Rates in the Regulatory Affairs Department.

Q. Please provide a brief outline of your educational background and business experience.

A. I graduated from the University of Florida in June 1973 with a Bachelor of Science degree in Business Administration. I have been employed at Tampa Electric since 1981. My work has included various positions in Customer Service, Energy Conservation Services, Demand Side Management ("DSM") Planning, Energy Management and Forecasting, and Regulatory Affairs. In my current position I am responsible for the company's Energy Conservation Cost Recovery ("ECCR") clause, the

Environmental Cost Recovery Clause ("ECRC"), and retail rate design.

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

A. Yes. I have testified before this Commission on conservation and load management activities, DSM goals setting and DSM plan approval dockets, and other ECCR dockets since 1993, and ECRC activities and dockets since 2001.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present, for Commission review and approval, Tampa Electric's proposed numerical DSM goals for 2015–2024. Tampa Electric's proposed goals are based upon the analytical work performed by the company and which was done in concert with the other Florida Energy Efficiency and Conservation Act ("FEECA") utilities. As such, the work updates and builds upon the most recent technical potential constructed by Itron, Inc. for the 2010-2019 DSM goals proceeding for FEECA utilities. The goals are separated into summer demand, winter demand and annual energy components for both

residential and commercial/industrial sectors. In support of the proposed DSM goals, my testimony will demonstrate that the process Tampa Electric utilized to establish its reasonably achievable, cost-effective goals comports with the requirements of Rule 25-17.0021, Florida Administrative Code ("F.A.C.").

In addition, my testimony addresses the renewable technology pilot programs that were required by the Commission in Docket No. 080409-EG. The results of the pilot programs are provided, and based on those results; my testimony supports the discontinuation of any future expenditures on these renewable technologies through the ECCR Clause until such time as they may become cost-effective.

Q. Have you prepared an exhibit in support of your testimony?

A. Yes. I have prepared an exhibit entitled, "Exhibit of Howard T. Bryant." It consists of seven documents and has been identified as Exhibit No. _____ (HTB-1). Document No. 1 contains Tampa Electric's proposed DSM goals for 2015-2024; Document No. 2 provides the comprehensive DSM measure list utilized in this

proceeding; Document No. 3 provides the Technical Potential Study update process; Document No. 4 contains Tampa Electric's avoided cost data used for cost-effectiveness evaluations; Document No. 5 provides the 2015-2024 estimated annual DSM achievable potential for the RIM and TRC tests; Document No. 6 provides the DSM economic potential cost-effectiveness sensitivity analyses; and Document No. 7 provides the 2015-2024 residential bill impacts for the rate impact measure ("RIM") test and total resource cost ("TRC") test portfolios.

TAMPA ELECTRIC'S PROPOSED DSM GOALS

Q. What overall DSM goals are appropriate and reasonably achievable for Tampa Electric for the period 2015-2024?

A. The appropriate and reasonable cumulative DSM goals for Tampa Electric for the period 2015-2024 are segmented into the residential and commercial/industrial sectors and provided at the generator level. For the residential sector, the proposed goals are 25.7 MW of summer demand, 61.9 MW of winter demand and 56.9 GWH of annual energy. For the commercial/industrial sector, the proposed goals are 30.6 MW of summer demand, 16.4 MW of winter demand

and 87.4 GWH of annual energy. These goals were developed using the Commission-approved cost-effectiveness methodology and are based on the RIM test. Document No. 1 of my exhibit details the incremental and cumulative annual amounts that comprise these goals.

Q. How do Tampa Electric's proposed DSM goals for the upcoming period of 2015-2024 compare to the company's proposed DSM goals for the 2010–2019 period?

A. Tampa Electric's cumulative proposed goals across the residential and commercial/industrial sectors for the 2015-2024 period are 56.3 MW of summer demand, 78.3 MW of winter demand and 144.3 GWH of annual energy. The total cumulative goals at the generator level proposed for the 2010-2019 period was 81.8 MW of summer demand, 40.9 MW of winter demand and 201.7 GWH of annual energy.

Q. What are the major drivers that established Tampa Electric's proposed 2015-2024 DSM goals at a lower level than what the company proposed during the last DSM goals setting process?

A. There are several factors impacting the decrease in the

company's current proposed goals from those proposed five years ago. These include: 1) overall annual customer growth is much lower as well as the average per customer usage of electricity has decreased thereby deferring the in-service date of the next generating unit in the company's expansion plan used for DSM evaluations, 2) appliance efficiencies have increased from previous levels and thus customer usage is further decreased, 3) cost for utility gas generation has decreased, and 4) several efficiency increases in appliance manufacturing standards have occurred for many baseline measures used for evaluation of potential DSM measures which reduced the available demand and energy savings that could be achieved through DSM.

Q. Do you believe that DSM goals should always be set higher than previously set goals?

A. No, I do not. More is not always better and setting goals too high just for the sake of having higher goals can lead to costly and unfair results for Tampa Electric customers. DSM goals should be set with a clear focus on the costs the utility would have to incur to serve the load that the conservation efforts are reasonably projected to avoid. In addition, the conservation

measures selected should minimize rate impacts and avoid cross-subsidization between customers. The Commission has been able to accomplish these objectives in the past through the use of the RIM test (to minimize rate impacts and avoid cross-subsidization), the two-year payback screen to minimize free ridership and a process that focuses on the utility's most recently projected resource needs.

Q. How do Tampa Electric's DSM goals accomplishments compare to other utilities in the nation?

A. Tampa Electric's accomplishments are significantly greater than most other utilities in the U.S. Tampa Electric began its DSM efforts in the late 1970s prior to the 1980 legislative enactment of the Florida Energy Efficiency and Conservation Act ("FEECA"). Since then, the company has aggressively sought Commission approval for numerous DSM programs designed to promote energy efficient technologies and to change customer behavioral patterns such that energy savings occur with minimal effect on customer comfort. Additionally, the company has modified existing DSM programs over time to promote evolving technologies and to maintain program cost-effectiveness.

From the inception of Tampa Electric's programs through 2013, the company has achieved 723 MW of winter demand reduction, 331 MW of summer demand reduction and 815 GWH of annual energy savings. These peak load reductions have eliminated the need for the equivalent of four 180 MW power plants. Of greater significance is the fact that the great preponderance of this accomplishment was achieved without subsidizing or penalizing customers who were not participants. Except for the 2010-2013 period, Tampa Electric achieved this level of reduction by offering only those DSM programs that reduce rates for all customers, both DSM participants and non-participants alike.

The magnitude of these continuing efforts by Tampa Electric, as well as other utilities in Florida, is demonstrated by the continued high rankings Florida utilities achieve as identified in the data available from the Energy Information Administration of the Department of Energy.

OVERALL PROCESS TO DEVELOP DSM SAVINGS

Q. Please describe the overall process used by Tampa Electric to develop its proposed DSM savings.

A. Tampa Electric's process to establish its proposed 2015-2024 DSM goals was strategically guided by two specific items that gave clear direction for DSM goals development and the ultimate filing requirements for this proceeding. First, a Commission Staff workshop occurred on June 17, 2013 where general direction was given by Staff as to how to initiate the current DSM goals setting process with regard to the Itron Technical Potential Study for each utility developed in the last goals proceeding. Second was the Commission's Order Establishing Procedure ("OEP") dated August 19, 2013.

The strong link between the June 17 workshop and the OEP is noted in the OEP. The OEP states that, "On June 17, 2013, staff conducted a meeting with utilities and interested parties to discuss the numeric goals proceeding. The parties agreed that the Technical Potential Study used in the previous numeric goals proceeding, Docket No. 080407-EG – 080412-EG, should be updated by each utility on or about September 30, 2013." Therefore, with agreement among parties and a recent, robust Technical Potential Study in hand, the FEECA utilities embarked on a comprehensive exercise to perform the update function in a consistent manner. At the

completion of the update and evaluation process, each utility was able to determine its proposed DSM goals for the 2015-2024 period.

Q. Why was an update to the previous Itron Technical Potential Study appropriate for this proceeding?

A. Updating a previous Technical Potential Study has been a practice utilized by this Commission in the past and has occurred when the foundational data in the previous study is still deemed appropriate. Furthermore, the utilities contacted Itron for advice on the appropriateness of conducting a comprehensive technical potential study so close in time to the last study. Itron experts advised that the value to be gained by conducting a full, comprehensive study versus updating a less-than-stale previous study would not be a wise use of funding. From their experience, they felt the previous study was still foundationally solid, and once updated by the capable utilities of Florida, would provide a useful and adequate tool for DSM goals setting. The end result would be consistency among the utilities, refreshed data with measure relationships maintained within sectors and any new measures added appropriately.

Q. How did the FEECA utilities initiate the update process for the previous Technical Potential Study?

A. To initiate the Technical Potential Study update process, the FEECA utilities sought input from interested parties on any new DSM measures that would be appropriate for inclusion in the current update process. The utilities also examined their own internal resources for new measures. For both the interested parties and the utilities, it was requested that any new measure meet two criteria: 1) the measure must be commercially available in the Florida marketplace, and 2) the assumptions for cost and savings potential must be Florida climate specific. In that manner, any new measure added to the evaluation process would be consistent in nature to the measures already contained in the previous Itron DSM measure data sets.

Q. Please identify the comprehensive DSM measure list developed for the 2015–2024 DSM goals setting process.

A. Tampa Electric’s comprehensive DSM measure list developed by input from all collaborative members was comprised of 63 residential sector measures, 92 commercial sector measures, and 119 industrial sector measures for a

combined total of 274 DSM measures. For residential, the measures were applied to building vintages in the single family, multi-family and mobile home building types. Commercially, the measures were applied to building vintages in the college, food store, hospital, office, lodging, restaurant, retail, school, warehouse, other health care and miscellaneous building types. For industrial, the measures were applied to building vintages in the food processing, textiles, lumber, paper-pulp, printing, chemicals, petroleum, rubber-plastics, stone-clay-glass, primary metals, fabrication metals, industrial machinery, electronics, transportation equipment, instruments and miscellaneous building types. When the comprehensive DSM measure list was applied to the various building types within each sector, over 3,300 specific DSM measure applications were developed for evaluation. Document No. 2 of my exhibit provides Tampa Electric's comprehensive DSM measure list.

Q. What were the new measures added to the current evaluation process?

A. Several new measures were added by the FEECA utilities. These measures are specifically separated and identified in the residential, commercial and industrial measure

lists provided in Document No. 2 of my exhibit. The FEECA utilities did not receive any new measures from interested parties in the format requested by the deadline established.

Q. In addition to new measures added for evaluation, what other adjustments were made to the evaluation process?

A. Other adjustments made to the evaluation process included adjusting for baseline measure changes due to building codes and manufacturing product standards. In these cases, some baseline measures were removed and new baselines were established. Those measures removed have been identified in the residential, commercial and industrial measure lists provided in Document No. 2 of my exhibit. Finally, adjustments were made for program participation and customer growth since the last study.

Q. What were the steps taken to update the Technical Potential Study previously completed by Itron?

A. The steps taken to update the previous study are provided in Document No. 3 of my exhibit. A flowchart with explanations of the process as well as a list of terms and their definitions is provided.

Q. Has the collaborative process among the FEECA utilities brought value to the overall DSM goals setting process?

A. Yes. The process has provided consistency, established accurate baselines to begin the new period of goals setting and included new measures not evaluated in the previous proceeding.

TAMPA ELECTRIC'S SPECIFIC PROCESS TO DEVELOP ITS DSM GOALS

Q. What was Tampa Electric's first step in developing its specific DSM goals?

A. Tampa Electric's first step in developing its specific DSM goals was to update its technical potential in the manner detailed in Document No. 3 of my exhibit. The technical potential is the total amount of DSM technically feasible in the company's service area based on the comprehensive DSM measure list. As stated in Itron's final report for Tampa Electric from the last DSM goals proceeding, the technical potential is a theoretical construct that represents the upper bound of energy efficiency, demand response and photovoltaic ("PV") potential from a technical feasibility sense, regardless of cost or acceptability to customers.

Specifically, the technical potential does not account for other real-world constraints such as product availability, contractor/vendor capacity, cost-effectiveness, or customer preferences. Furthermore, the technical potential estimates for energy efficiency, demand response, and PV are not additive. This is due to the interactive effect of certain measures on end uses. With this backdrop, the energy efficiency demand and energy values represented by the updated technical potential are 1,306 MW of summer demand, 823 MW of winter demand and 5,961 GWH of annual energy. The demand response demand reduction values represented by the technical potential are 502 MW of summer demand and 430 MW of winter demand. Finally, the PV demand and energy values represented by the technical potential are 2,929 MW of summer demand, 447 MW of winter demand and 7,892 GWH of annual energy.

Q. Once the technical potential was established, what was Tampa Electric's next step?

A. The next step involved initiating Tampa Electric's integrated resource planning ("IRP") process. The company's IRP process has been utilized and approved in all previous DSM goals setting proceedings and is clearly

delineated in the company's annual Ten-Year Site Plan filing. The IRP process began by establishing Tampa Electric's supply-only resource plan for the base years of 2015 through 2024. The supply-only resource plan was developed by having no additional DSM impacting the company's forecast after 2014. In so doing, the avoided unit for the upcoming cost-effectiveness analyses was identified. Document No. 4 of my exhibit provides the detail of this avoided unit.

Q. Once the avoided unit information was determined, what was the next step in the process?

A. The next step for Tampa Electric was to establish its economic potential. This process began with the evaluation of the aforementioned 3,322 specific DSM measure applications contained in the technical potential that were spread across the various sectors and building types. The company developed its economic potential by utilizing the Commission's approved cost-effectiveness tests, namely, the RIM and TRC tests. When calculating the RIM test, only lost revenues were considered on the cost side of the equation. For the TRC test, only the customer's equipment cost was considered on the cost side of the equation. For both the RIM and TRC tests, the

benefits were comprised of avoided supply side costs that included the generator, transmission and distribution, and fuel costs.

Tampa Electric's economic potential established under the RIM test evaluation resulted in 556 individual evaluations remaining from the original list. The resulting demand and energy values of the economic potential were 1,090 MW of summer demand, 949 MW of winter demand and 3,516 GWH of annual energy.

Tampa Electric's economic potential established under the TRC test evaluation resulted in 878 individual evaluations remaining from the original list. The resulting demand and energy values of the economic potential were 1,157 MW of summer demand, 876 MW of winter demand and 4,495 GWH of annual energy.

Q. After the RIM and TRC economic potentials were determined, what was the next step in Tampa Electric's process?

A. The next step in Tampa Electric's process was to perform a systematic analysis to determine the appropriate incentive for each measure under the RIM and TRC economic

potential scenarios. Since this step required the identification of measures that could cost-effectively handle the application of incentives, it was necessary to employ a series of screenings such that when completed, the appropriate measures for DSM goals establishment would remain.

THE SCREENING PROCESS

Q. Please describe the steps involved in the screening process.

A. The first step in the screening process was to screen those measures out of the RIM and TRC economic potential scenarios by evaluating their cost-effectiveness for the inclusion of administrative costs but with no incentives. Tampa Electric developed the administrative costs though its experience with the same or similar measures contained in existing DSM programs. Under the RIM test evaluation, the screening resulted in 556 individual evaluations remaining with summer demand savings of 1,090 MW, winter demand savings of 949 MW, and annual energy savings of 3,516 GWH. Under the TRC test evaluation, this screening resulted in 878 individual evaluations remaining with summer demand savings of 1,157 MW, winter

demand savings of 876 MW, and annual energy savings of 4,495 GWH. The demand and energy savings for this screening exercise is the same as the economic potential results previously identified due to the diminished impact of administrative costs.

The second step in the screening process was to screen those measures out of the RIM and TRC potential scenarios for free ridership. The term "free ridership" describes a situation where a customer willingly accepts a rebate or other type of incentive to purchase goods or services that the customer would have purchased anyway, without the rebate or other incentive, because of the cost-effectiveness of the goods or services purchased. Furthermore, Rule 25-17.0021, F.A.C., requires the minimization of free riders in the setting of DSM goals. This requirement was accomplished through the application of a longstanding Commission recognized practice, initially approved in the 1994 DSM goals proceeding. There, the Commission approved the use of a participant payback of two years or less without a utility incentive. The two-year or less period of time is sufficient motivation for a customer’s natural, self-serving adoption of the DSM measure. Simplistically, it was thought that Tampa Electric, and ultimately its

customers, should not pay specific customers to do what they would do on their own without an incentive. Therefore, the two-year payback criterion is the appropriate means to apply to minimize free ridership as required by Rule.

The execution of this screening level for free ridership required not only the use of the RIM and TRC tests, but also the Participants' test in conjunction with each. By utilizing this free ridership screen, 417 individual evaluations remained qualified under the RIM and Participants' tests evaluation and had summer demand savings of 963 MW, winter demand savings of 903 MW, and annual energy savings of 2,933 GWH. Under the TRC and Participants' tests evaluation, 551 individual evaluations remained qualified with 786 MW of summer demand savings, 764 MW of winter demand savings, and 3,362 GWH of annual energy savings.

The third step in the screening process was the development of the incentive level to be applied to the remaining measures. For this step, Tampa Electric chose an incentive level that would maximize the achievable potential. This was accomplished by selecting the incentive level that established measure payback at the

two-year payback level or as close to that level as possible while maintaining cost-effectiveness. This incentive selection process was completed for both RIM and TRC scenarios and provided the largest achievable potential for each scenario. Again, as this process was applied, cost-effectiveness was maintained under the RIM and TRC methodologies and in conjunction with the Participants' test.

FOLLOWING THE SCREENING PROCESS

Q. Once the third step in the screening process was completed, what did Tampa Electric do with the results?

A. At the completion of the screening process, the results of the incentive level determination under the RIM and TRC scenarios were evaluated with supply curve adoption modeling to establish the achievable DSM potential under both RIM and TRC scenarios.

Q. What are Tampa Electric's DSM energy efficiency achievable potentials for the 2015-2024 period under the RIM and TRC scenarios?

A. For the 2015-2024 period, Tampa Electric's DSM energy

efficiency achievable potentials under the RIM scenario are 35.8 MW of summer demand savings, 52.4 MW of winter demand savings, and 138 GWH of annual energy savings. Under the TRC scenario Tampa Electric's DSM energy efficiency achievable potentials are 65.7 MW of summer demand savings, 71.6 MW of winter demand savings, and 262.7 GWH of annual energy savings. These values are stated at the generator level.

Q. Do these DSM achievable potentials include demand response and renewable measures?

A. No. These DSM achievable potentials only account for energy efficiency measures. Tampa Electric evaluated the potentials of demand response and renewable measures separately.

Q. Please describe the method Tampa Electric employed to estimate the achievable potential demand and energy savings from demand response and renewable measures.

A. The achievable potential for demand response was developed in a manner similar to that used for the energy efficiency achievable potential, namely updating the demand response component of the 2009 Itron technical

potential. However, no adjustments were necessary for codes and standards and no new measures were identified. Therefore, the updating only required adjustments for customer growth and historical accomplishments since the last technical potential. Based on these adjustments, the associated achievable potential for demand response is 20.5 MW of summer demand savings, 25.9 MW of winter demand savings, and 6.3 GWH of annual energy savings.

The achievable potential for renewables was developed utilizing data from Tampa Electric's pilot renewable energy programs. Based on the results of the pilot programs, neither solar water heating nor PV measures provided any contribution to the company's achievable potential. Details of the results of the company's pilot renewable programs are addressed later in my testimony.

Q. Based on the estimated achievable potentials for energy efficiency and demand response, what is Tampa Electric's total estimated maximum achievable potential for DSM measures?

A. When the estimated achievable potentials for energy efficiency and demand response are combined, Tampa Electric's total estimated maximum DSM achievable

potential for the 2015-2024 period under the RIM scenario is 56.3 MW of summer demand savings, 78.3 MW of winter demand savings, and 144.3 GWH of annual energy savings. Tampa Electric's total estimated maximum achievable potential for the 2015-2024 period under the TRC scenario is 86.2 MW of summer demand savings, 97.5 MW of winter demand savings, and 269.0 GWH of annual energy savings. These are generator level values. Document No. 5 of my exhibit provides the annual and cumulative totals for the RIM and TRC cost-effectiveness scenarios.

Q. What are Tampa Electric's proposed residential and commercial/industrial DSM goals for the 2015-2024 period?

A. For the 2015-2024 period, Tampa Electric's proposed DSM goals for the residential and commercial/industrial sectors are the generator level achievable potential demand and energy results under the RIM maximum incentive scenario. Specifically, the residential sector DSM goals are 25.7 MW of summer demand savings, 61.9 MW of winter demand savings, and 56.9 GWH of annual energy savings. The commercial/industrial sector DSM goals are 30.6 MW of summer demand savings, 16.4 MW of winter demand savings, and 87.4 GWH of annual energy savings. Document No. 1 of my exhibit provides the annual and cumulative amounts for

both sectors for the 2015-2024 period.

Q. What is the cost-effectiveness basis for Tampa Electric's proposed DSM goals?

A. The cost-effectiveness basis for Tampa Electric's goals is the RIM test in conjunction with the Participants' test. The RIM test, when used in tandem with the Participants' test, provides a cost-effective, fair, reasonable and equitable determination of DSM expenditures for both the participants and the non-participants. The RIM test puts the least amount of upward pressure on rates while allowing for significant accomplishments of DSM measure deployment. Furthermore, the RIM test does not promote cross-subsidization among participants and non-participants. Finally, history indicates that this Commission's longstanding decisions in the past to approve a utility's DSM goals based on the RIM test have not hindered the DSM performance of the Florida utilities relative to other utilities in the industry. Based on these results and the fairness of the methodology, Tampa Electric believes its DSM goals for the 2015-2024 period should be established on the RIM test basis.

ADHERENCE TO F.A.C. RULE AND STATUTORY DSM GOALS SETTING REQUIREMENTS

Q. Does the evaluation process utilized by Tampa Electric to establish its proposed DSM goals for the 2015-2024 period address the requirements of Rule 25-17.0021, F.A.C.?

A. Yes. The Rule requires a utility to 1) project its proposed DSM goals in both the residential and commercial/industrial sectors, 2) give consideration to measures applicable for new and existing construction, 3) ensure that major end-use categories specified in the Rule be assessed, and 4) consider such things as overlapping measures, appliance efficiency standards, interactions with building codes, free riders, rebound effects and the utility's latest monitoring and evaluation data. Therefore, the comprehensive DSM measure list developed by the FEECA utilities, the company's previous utilization and now current update of Itron's Technical Potential for Electric Energy and Peak Demand savings for Tampa Electric, and the company's overall evaluation process from its updated technical potential to its proposed DSM goals for the 2015-2024 period comport with Rule 25-17.0021, F.A.C.

Q. Has Tampa Electric provided an adequate assessment of the full technical potential of all available demand-side conservation and efficiency measures, demand response and demand-side renewable energy systems?

A. Yes. Tampa Electric, in conjunction with the other FEECA utilities, developed a comprehensive DSM measure list. Subsequently, the company conducted an adequate assessment of the full technical potential of all available demand-side conservation and efficiency measures, demand response and renewable energy systems. A total of 274 measures, including energy efficiency, demand response and renewable energy measures were identified and evaluated by the company.

Q. How has Tampa Electric incorporated supply-side efficiencies into its planning process?

A. Supply-side efficiencies include improvements in generation, transmission and distribution. Therefore, Tampa Electric’s motivation to deliver electric service to its customers in the most economically efficient manner possible makes executing supply-side efficiencies a naturally occurring result. A review of Tampa Electric’s plans for supply-side endeavors is an inherent

element of the company's annual Ten-Year Site Plan which is routinely reviewed by this Commission. Furthermore, both supply-side efficiency and conservation resources are analyzed in every need determination for new sources of generation. When Tampa Electric selects its avoided supply-side costs for utilization in DSM cost-effectiveness evaluations, it is selecting resources that have previously been reviewed and determined to be efficient. Of further note is the fact that while efficiency improvements in supply-side resources are important, these improvements have a tendency to reduce potential savings available through DSM activity.

Q. Has Tampa Electric provided an adequate assessment of the achievable potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems?

A. Yes. Tampa Electric has conducted an adequate assessment of the full technical, economic and achievable potentials of all available demand-side conservation and efficiency measures including renewable energy systems. The company employed a reasonable approach to identifying administrative costs and incentives for the measures and evaluated the measures against the appropriate supply-

side avoided cost data.

Q. Should the Commission establish separate goals for demand-side renewable energy systems?

A. No. Tampa Electric evaluated renewable technologies as an integral part of its overall DSM measure evaluation process. Data for those evaluations was taken from actual field data collected from the company's residential and commercial pilot renewable energy programs that were initiated in late 2010 by Commission order from the last DSM goals proceeding. At the conclusion of that proceeding, the Commission acknowledged that none of the renewable technologies were cost-effective under any test; however, utilities were ordered to conduct pilot programs with expenditure caps up until the next DSM goals setting proceeding.

Tampa Electric is now at the next DSM goals setting proceeding having a wealth of information from its renewable pilot programs. A full narration concerning these pilot programs can be found later in my testimony, but program results clearly indicate cost-effectiveness has not been achieved under any test. Furthermore, any ongoing expenditures on these types of programs will only

serve to continue to unduly raise rates on customers and further exacerbate subsidy payments among customers – something this Commission's has strived not to do through applying appropriate cost allocations between customer rate classes.

Of further note is the acknowledgement by this Commission that setting DSM goals at zero is in fact appropriate if no DSM measures were found to be cost-effective.

At this juncture, the evidence is convincing that renewable technologies are not suitable for inclusion in goals setting. These measures demonstrated non-cost-effectiveness in the previous DSM goals setting proceeding, yet pilot programs were ordered and initiated and have now proven through field experience that they are still not cost-effective. With this Commission having previously concluded that setting goals at zero is appropriate when no measures are cost-effective, the Commission must conclude that zero goals for renewable technologies is now appropriate in this proceeding. To allow for any further expenditure on this renewable activity will only serve to increase rates beyond what is reasonable and continue the inappropriate practice of cross-subsidization among customers.

Q. Do Tampa Electric's proposed DSM goals adequately reflect the costs and benefits to customers who will participate in programs developed to promote DSM measures?

A. Yes. Through Tampa Electric's efforts to refresh the work Itron conducted for the previous DSM goals setting proceeding, and with local market input relative to baselines and incremental equipment costs supplied to Tampa Electric, the company's proposed RIM-based DSM goals adequately reflect the costs and benefits to customers who will participate in programs developed to promote DSM measures.

Q. Do Tampa Electric's proposed DSM goals adequately reflect the costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions?

A. Yes. The surest way to adequately reflect the costs and benefits to the general body of ratepayers as a whole without subsidization within or across rate classes is to employ the use of the RIM test for DSM goals setting and program approval. Since the inception of DSM in Florida, this Commission has a longstanding practice of utilizing the RIM test to provide fair, equitable and reasonable

treatment for all ratepayers while minimizing overall rate impacts of DSM expenditures. Tampa Electric strongly encourages the Commission to continue this practice so as to establish meaningful DSM goals while minimizing overall rate impacts.

OTHER INFORMATION REQUESTED BY THE COMMISSION'S ORDER ESTABLISHING PROCEDURE

Q. Please describe how Tampa Electric conducted the sensitivity analyses requested by the Commission's OEP.

A. Tampa Electric's sensitivity analyses were conducted on the RIM and TRC economic potentials with regard to the following factors: 1) higher fuel costs, 2) lower fuel costs, 3) shorter free-ridership exclusion period, and 4) longer free-ridership exclusion period. Specifically, the fuel cost was varied in a similar manner as to Tampa Electric's sensitivity conducted in the fuel docket. The free-ridership exclusion period varied from one year to three years.

Q. For Tampa Electric, please describe the results of the sensitivity analyses when applied to the 2015-2024 RIM and TRC DSM economic potentials.

A. Tampa Electric's sensitivity analyses on the 2015-2024 RIM and TRC DSM economic potentials were conducted by determining the change in four components for both potentials. These components were the total number of individual measures across housing and building types that passed RIM or TRC tests, annual energy, summer demand and winter demand. Document No. 6 provides the detailed results of the analyses.

Results from the sensitivity analyses are modest at best. From a RIM perspective, the greater variation occurred with summer demand relative to fuel costs. From a TRC perspective, the greater variation occurred with annual energy relative to payback duration.

Q. Should the results of these sensitivity analyses be used in any manner to influence or establish Tampa Electric's DSM goals for the 2015-2024 period?

A. No. Tampa Electric believes the sensitivity analyses simply provide a relative indication as to how cost-effectiveness evaluations may be affected by changes in assumptions. There is no basis to conclude the assumption changes modeled by the company for this sensitivity exercise will in some manner become more

plausible than the actual assumptions utilized.

Q. For Tampa Electric, what are the 2015-2024 annual bill impacts on residential customers using 1,200 kWh/month for the projected RIM achievable portfolio and the projected TRC achievable portfolio?

A. To make the determination of the 1,200 kWh/month annual residential bill impact for the 2015-2024 period relative to the RIM and TRC achievable portfolios, Tampa Electric's approach was to provide a total bill estimate that included all of the normal components that comprise a typical residential bill, namely, base rate, recovery clauses and customer charge. Also, the company included the costs for maintaining existing DSM on the company's system. This principally included load management costs associated with maintaining the existing level of load management on the system as well as energy audit costs necessary to continue compliance with Rule 25-17.003, F.A.C. The results of these analyses for the 2015-2024 period are contained in Document No. 7 of my exhibit and demonstrate the estimated ten-year total cost for a 1,200 kWh/month bill would be $16,817 for the RIM portfolio and $16,862 for the TRC portfolio.

It is important to realize the dollar amounts for the RIM and TRC achievable portfolios are estimates for only one customer's electric bill. A more realistic view is gained by looking at the impact across the company's entire system and thus its entire customer base. The estimated ECCR clause cost to deliver the RIM portfolio for the 2015-2024 period is $470 million. The estimated ECCR clause cost to deliver the TRC portfolio for the 2015-2024 period is $523 million. Therefore, the TRC portfolio is a $53 million greater burden for customers. Furthermore, the RIM portfolio, by definition of the RIM test, is cost-effective for both participating and non-participating customers; therefore, there are no losers. However, the TRC portfolio is cost-effective for program participants but not for non-participants. Under the TRC portfolio, non-participants will actually be subsidizing the program participants for their DSM efforts. Therefore, the RIM portfolio is the more cost-effective, less expensive, more reasonable and equitable approach to take in order to provide another resource to assist the company in meeting future system needs.

RESULTS OF TAMPA ELECTRIC'S SOLAR PILOT PROGRAMS

Q. Please describe Tampa Electric's current solar pilot

programs.

A. Tampa Electric's solar pilot programs are comprised of four initiatives. These pilot initiatives include PV systems for residential and commercial customers, PV systems for schools, residential solar water heating ("SWH") and low income SWH.

The PV pilot program for residential and commercial customers provides an incentive of $2 per watt ($2,000 per kW) to the customer for PV systems installed on homes and businesses. The maximum incentive per premise is $20,000.

The pilot PV for schools program is managed in conjunction with the Florida Solar Energy Center ("FSEC") SunSmart/E-Shelter program. Tampa Electric installs one 10 kW PV system a year on a school in its service area identified as an emergency shelter. The school must meet FSEC E-Shelter program criteria for participation. The PV system includes battery backup and the overall effort includes educational opportunities for teachers and students.

The pilot residential SWH program provides a $1,000

incentive for the installation of a SWH system on a new or existing home.

Finally, the pilot low income SWH program provides a solar water heating system for new construction low income housing. This effort is managed in conjunction with non-profit building organizations (e.g., Habitat for Humanity) that engage in these types of construction activities. Tampa Electric provides up to five SWH systems per year.

Q. Why were these pilot programs initiated?

A. These pilot programs were initiated as a result of Commission Order No. PSC-09-0855-FOF-EG ("Order"). In that Order, the Commission stated that "…amendments to Section 366.82(2), F.S., require us to establish goals for demand-side renewable energy systems. ***None of these resources were found to be cost-effective in the utilities' analyses***. However, we can meet the intent of the Legislature to place added emphasis on these resources, while protecting ratepayers from undue rate increases by requiring the IOUs to offer renewable programs subject to an expenditure cap. We direct the IOUs to file pilot programs focusing on encouraging solar

water heating and solar PV technologies in the DSM program approval proceeding. Expenditures allowed for recovery shall be limited to 10 percent of the average annual recovery through the Energy Conservation Cost Recovery clause in the previous five years….” (Emphasis added)

Based on that Order, Tampa Electric, along with Florida Power and Light, Duke Energy (at the time Progress Energy), Gulf Power and Florida Public Utilities developed specific pilot renewable programs to meet Order requirements. The Commission approved annual expenditure for these utilities was $24.5 million annually with Tampa Electric’s portion being $1.5 million annually.

As stated in the Order, all witnesses who provided testimony on demand-side renewable resources in the proceeding clearly articulated the fact that PV and solar thermal technologies were not cost-effective. That fact was also stated in the Commission’s conclusion to the section on Demand-Side Renewable Energy Systems. However, at the time, the Commission construed from the recently adopted legislation that emphasis on these resources was needed and directed the affected utilities to initiate programs for renewable technologies with the

annual spending requirements discussed above. Witnesses advocating for this initiative put forth speculation that infusing the market with incentives could lower the overall cost of renewable systems and thereby improve cost-effectiveness. Interestingly, the cost of renewable systems has been declining on a national basis due in no part to the influence from Florida-specific incentives. Further, proponents of this quasi research and development type effort suggested that it would facilitate improvements in each technology's efficient energy production. Based on the results of the pilot programs, efficiency improvements of the technologies were limited at best.

Q. Generally, how have these pilot programs performed since inception?

A. The PV pilot program for residential and commercial sectors has been popular with customers. Customers quickly reserve the incentives offered each year through the company's website. In accordance with program standards, should any funds be reserved but not utilized in the prescribed time period, these funds are again made available to customers during that same year. Based on installed system sizes the company has experienced in

this initiative, 60 to 70 incentives have been available each year.

The pilot PV for schools program was designed to use a portion of the overall renewable initiative annual funding to secure the installation of one PV system per year on qualified schools. The company had 11 schools in its service area that were finalists through FSEC's SunSmart Schools E-Shelter program. Tampa Electric has chosen one school each year based on that school's FSEC E-Shelter qualifications ranking and installed a PV system with battery backup at that location.

The pilot residential SWH program has experienced modest success. Each year, the incentives made available for SWH systems have been more than the amounts customers applied for and received. Therefore, the company has shifted those unused funds over to the pilot PV program for potential distribution. Annually, Tampa Electric has experienced a maximum of 49 participants in the pilot SWH program.

The pilot low income SWH program has had marginal success. The number of annual solar water heating installations is solely dependent upon the number of new

houses constructed by non-profit organizations. Funding was made available for five installations per year; however, 2012 was the only year where all five systems were installed. Any remaining funds were made available to other pilot renewable initiatives.

Q. Please summarize the participation rates for these pilot programs.

A. The participation rates for these pilot programs are provided in the table below.

Year	PV System	PV for Schools	Res SWH	Low Income SWH
2011	57 (49 Res (8 Com)	1	46	2
2012	70 (63 Res (7 Com)	1	25	5
2013	65 (56 Res (9 Com)	1	49	3

Q. What costs has Tampa Electric incurred delivering these pilot programs to its service area?

A. The costs Tampa Electric has incurred delivering these pilot programs to its service area are as follows:

2011 - $671,429

2012 - $1,625,597

2013 – $1,496,697

Q. What are the customer equipment costs for the solar technologies and how has that trended since inception?

A. The annual average customer equipment costs for PV and SWH technologies are provided below:

PV:

2011 - $5,500 per kW

2012 - $4,346 per kW

2013 - $3,419 per kW

The cost per kW has decreased over time primarily due to the decrease in PV panel pricing. However, Tampa Electric does not believe the incentive program caused this price decrease. As previously stated, PV system costs have been declining on a national basis absent the influence of incentives from Florida utilities.

SWH:

2011 - $5,194 per system

2012 - $5,254 per system

2013 - $5,656 per system

The cost for SWH systems has experienced a modest increase over time. The company believes this is primary due to two factors: 1) normal inflationary impacts on materials and labor, and 2) slight variations in system sizes being installed.

Low Income SWH:

2011 - $3,500 per system

2012 - $4,480 per system

2013 - $4,230 per system

The per unit cost for SWH systems installed on new low income housing has risen since the first year, but of interest is the comparison between low income system costs and residential SWH program system costs. Annually, the low income SWH systems, totally funded by renewable initiative dollars, have ranged between $800 to almost $1,700 less than the SWH systems receiving incentives through the residential SWH pilot program. However, the SWH system incentive paid to the residential

homeowner ($1,000) tends to bring that system's net cost down to levels somewhat comparable to the low income systems.

Q. For the purpose of cost-effectiveness calculations, what are the demand and energy savings from Tampa Electric's pilot solar programs?

A. The demand and energy savings necessary for the cost-effectiveness determination of each of the pilot programs is provided in the table below.

Pilot Program	Summer kW	Winter kW	Annual Energy
Residential PV	2.33	1.05	11,236
Commercial PV	3.56	1.61	17,188
SWH	0.31	0.40	1,730

Q. Based on the demand and energy savings from these solar pilot programs, what are their cost-effectiveness values?

A. The cost-effectiveness values for Tampa Electric's solar pilot programs are determined by calculating the benefit-to-cost ratios of the program offerings as defined by three tests, namely the RIM test, the TRC test and the Participant Test. These tests are specifically

identified by Commission Rule 25-17.008, F.A.C. – the same rule and calculation methodology used in setting DSM goals and establishing cost-effective DSM plans. By utilizing these same tests, the "playing field" for all technologies, solar or otherwise, is fair and level. In order to pass these tests, the calculated test values must be greater than 1.0, indicating benefits are greater than costs. The cost-effectiveness values for the solar pilot programs are provided in the table below.

Pilot Program	RIM Value	TRC Value	Participant Value
Residential PV	0.38	0.41	1.20
Commercial PV	0.40	0.39	1.10
SWH	0.56	0.28	0.71

Q. What do the cost-effectiveness test values for the pilot PV programs mean?

A. The meaning of these cost-effectiveness values is clear and stark. The pilot residential and commercial PV programs do not pass the RIM Test or the TRC Test. Their RIM values are 0.38 and 0.40, respectively, and their TRC values are 0.41 and 0.39, respectively.

From a RIM Test perspective, this means the total

benefits (avoided generation, avoided T&D and fuel) are far too small compared to the costs (incentives, program administration, and lost revenue) associated with delivering these programs.

From a TRC Test perspective, this means the total benefits (avoided generation, avoided T&D and fuel) are also far too small compared to the program costs (cost of equipment, equipment O&M costs, and program administration) associated with delivering these programs.

However, the Participant Test values for both the residential and commercial offerings (1.20 and 1.10, respectively) indicate adequate cost-effectiveness, i.e., the benefits to the participants is greater than the costs; however, this is due to cross-subsidies. Specifically, the non-passing values for both the RIM and TRC Tests demonstrate that participants are being non-cost-effectively subsidized by all other customers.

Q. Please explain why the RIM and TRC Tests have failing values and yet the Participant Test has passing values.

A. The RIM Test has failing values for the residential and

commercial programs (0.38 and 0.40, respectively) due to the magnitude of the incentives. At $2 per watt, the average incentive for residential is $14,028 and the average incentive for commercial is $20,000.

The TRC Test has failing values for the residential and commercial programs (0.41 and 0.39, respectively) due to the high cost of the technology, even though costs have been decreasing over the life of the pilot programs.

The Participant Test has passing values for the residential and commercial programs due to the high incentives offered as well as currently available tax credits. Over time, the incentive levels offered help the participant recover the investment before the useful life of the equipment has been exhausted. But as previously stated, cross-subsidies are flowing from non-participants to the participants without sufficient, cost-effective benefits being received by the non-participants.

Q. Did Tampa Electric perform sensitivities on the various tests to determine what combination of incentives and technology costs, if any, could result in passing values for the RIM and TRC Tests? If so, what were the results

of those sensitivities?

A. Yes. Tampa Electric performed a series of sensitivities that included the following: 1) decrease the incentive to the point where the Participant Test still passes and then determine the RIM Test values; 2) decrease the incentive to the point where the RIM Test finally achieves a passing value and then examine the resulting Participant Test values; and 3) decrease the technology cost to the point where the TRC Test finally passes and then examine the resulting Participant Test values.

The results of the first sensitivity (Participant Test/ RIM Test) indicate the incentive levels for pilot residential and commercial programs can be decreased to $6,779 and $14,358, respectively, and still maintain Participant Test viability. However, the resulting RIM Test values only reach a level of 0.50 and 0.46, respectively. These reduced incentive levels are as low as the Participant Test can withstand and still maintain cost-effectiveness for the customer; however, the respective RIM values do not pass and therefore cannot support an ongoing program that will be equitable to the general body of ratepayers.

The results of the second sensitivity (RIM Test/Participant Test) indicate there is no level of incentive that the RIM Test can support and sustain cost-effectiveness. In other words, even at a zero incentive level for both pilot residential and commercial programs, both programs continue to fail the RIM Test with RIM values of 0.73 and 0.77, respectively.

The results of the third sensitivity (TRC Test/Participant Test) indicate that technology costs must drop to $1,205 per kW for residential systems and $1,201 per kW for commercial systems so that the TRC Test gives a passing value of greater than 1.0. Given the difference in magnitude between these costs per KW and the 2013 average cost of $3,419 per kW Tampa Electric experienced, it seems unlikely a passing TRC Test value will materialize.

In summary, for now and the foreseeable future these sensitivity analyses do not support the potential of PV to be promoted as a cost-effective DSM program for Tampa Electric. Based on the pilot program results to date, the technology does not pass the RIM Test under any circumstance and the only way to pass the TRC Test is for the technology cost to significantly decrease from its

most recent actual level of $3,419 per kW to $1,201 per kW – a precipitous fall indeed.

Q. What do the cost-effectiveness test values for the pilot residential SWH program mean?

A. The pilot residential SWH program cost-effectiveness values are as depressed as the pilot PV programs. Specifically, the RIM value is 0.56; the TRC value is 0.28; and the Participant Test value is 0.71. These values have been calculated with the $1,000 incentive included.

From a RIM Test perspective, this means the total benefits associated with this program are far too small compared to the company costs necessary to deliver the program. From a TRC Test perspective, the total benefits are also far too small compared to the overall program costs associated with delivering this program. Finally, from a Participant Test perspective, even with the $1,000 incentive, the participant is not made whole since the savings on the electric bill will not recoup the net equipment cost. Therefore, the customer should not install the SWH technology because it is not cost-effective to do so.

Q. As with the PV programs, did Tampa Electric perform sensitivities on the various tests to determine what combination of incentives and technology costs, if any, could result in passing values? If so, what were the results of those sensitivities?

A. Yes, Tampa Electric performed sensitivity analyses on the pilot residential SWH program. The first analysis was to determine if the RIM Test could reach a passing value. Even with an incentive of zero dollars, the RIM Test only achieved a value of 0.80.

The second analysis was to determine how large an incentive was necessary for the Participant Test to reach a passing value. A passing value was achieved at an incentive of $3,740; however, the RIM Test plummeted to a value of 0.31 due to the increased magnitude of the incentive.

The third analysis was to determine what decrease in equipment cost would be necessary in order to reach a passing value for the TRC Test. The analysis demonstrated that an equipment cost of $1,051 would allow the TRC Test to achieve a passing value. However, when that cost is compared to the pilot program's 2013 average

installed equipment cost of $5,656 per SWH system, it seems highly unlikely that level of reduction in the equipment cost will ever occur.

In summary, there appears to be no opportunity for SWH to be developed into a cost-effective DSM program in the foreseeable future.

Q. Based on these cost-effectiveness evaluations and subsequent sensitivities conducted by Tampa Electric, does the company anticipate continuing to offer incentives for the solar technologies contained in the pilot programs at the end of the required pilot program period?

A. No. The pilot solar technologies initiative ordered by the Commission was established to determine DSM program viability. Tampa Electric believes viability has been determined, and in fact, does not exist. Therefore, any continuation of expenditures on this renewable initiative exacerbates two existing conditions: 1) the continued upward pressure on the ECCR Clause for programs that do not pass RIM or TRC cost-effectiveness tests, and 2) the continued payment of subsidies from non-participants to those customers installing the technologies. These

subsidizing payments made through the collection of pilot program costs in the ECCR Clause are being levied against the non-participating general body of ratepayers who are not receiving their commensurate level of benefits. It is simply not a responsible use of ratepayer dollars to promote these programs under any cost-effectiveness test.

CONCLUSIONS

Q. What overall DSM goals are reasonably achievable for Tampa Electric for the 2015-2024 period?

A. Based on the analysis performed by Tampa Electric for this current DSM goals setting process, the company's reasonably achievable generator level RIM-based DSM goals for the 2015-2024 period are 56.3 MW of summer demand savings, 78.3 MW of winter demand savings, and 144.3 GWH of annual energy savings. These amounts are detailed on an annual basis for both the residential and commercial/industrial sectors in Document No. 1 of my exhibit.

By accomplishing these DSM goals, Tampa Electric will increase overall energy efficiency in its service area and lower electric rates for all customers. The company

is quite aware that keeping electric rates as low as possible while advancing broad scale efforts of overall conservation is important to its customers and therefore the company.

Q. Does the methodology used by Tampa Electric to set DSM goals for the 2015-2024 period comport with statutory and F.A.C. requirements?

A. Yes. Tampa Electric began its evaluation process with a comprehensive list of potential DSM measures for residential and commercial and industrial sectors, applied those measures over multiple construction and building types, and considered several aspects of measure interaction as well as free ridership. Tampa Electric adhered to statutory requirements by developing estimated technical and achievable potentials while properly reflecting cost and benefits to all customers. Additionally, Tampa Electric utilized a sound, proven approach that has been used and approved in principle by this Commission in past DSM goals setting proceedings.

Q. Do Tampa Electric’s proposed DSM goals provide a cost-effective means for all ratepayers to help meet the need for additional generation through 2024?

A. Yes. Through the use of the RIM test, Tampa Electric has assured its ratepayers that the most cost-effective resources will be used to meet future capacity needs.

Q. Should Tampa Electric's proposed 2015-2024 DSM goals be approved?

A. Yes. Tampa Electric's proposed 2015-2024 DSM goals meet rule and statutory requirements, are cost-effective for participants and non-participants, help to minimize the rate impact for future capacity needs, address the desires and needs of its customers, and are reasonably achievable.

Q. Does this conclude your testimony?

A. Yes.

BY MR. BEASLEY:

Q Thank you. Have you prepared a summary of your direct testimony?

A Yes, I have.

Q Would you please present it for us?

A Yes. Good afternoon, Commissioners -- I had to look at the clock to make sure, it's 12:15 -- but good afternoon, Commissioners. My direct testimony addresses the comprehensive, thorough approach taken by Tampa Electric to establish and propose to this Commission the company's DSM goals for the 2015 through 2024 time period. I describe the method employed by the company to establish those goals, which is in accordance with Rule 25-17 of the *Florida Administrative Code*, and it specifically follows the Commission's Order Establishing Procedure that was put forth earlier or toward the end of last year for these particular dockets.

Tampa Electric's proposed goals have been developed utilizing the RIM test in conjunction with the Participants test. This method accomplishes two fundamental principles, principles that are the very fiber and the foundation really of countless decisions you have made in the past.

The first principle is to establish DSM goals

that create the least amount of upward pressure on customer rates. The second principle is do not establish cross-subsidies across or among customers. Only the RIM test when applied to all DSM measures evaluated can deliver results that meet those principles.

Additionally, the use of the RIM and the Participants tests accomplishes statutory requirements to consider impacts to both the participant and to the general body of ratepayers. By using the RIM and Participants tests, Tampa Electric's proposed DSM goals were developed in a systematic, orderly fashion consistent with approved practices from previous goals hearings.

The process for goals development was structured. It did not allow for arbitrary or capricious decisions to be made. The process followed a carefully developed plan to comply with all relevant statutory and rule requirements. The goals are based upon the company's most recent planning process. They are aggressive, but at the same time they are reasonably achievable and they're cost-effective for all customers.

Specifically, Tampa Electric's proposed DSM goals have been developed through the careful evaluation of some 274 measures applied across residential,

commercial, industrial market segments involving some 30 different building types, and that lent itself to some 3,300 individual evaluations once you spread across those building types in those segments.

This order and the rigor of analysis I just described has delivered much success for Tampa Electric and as well for other utilities in Florida. As a whole, the Florida utilities have consistently ranked among the top performers in the country, both for demand and energy reduction accomplishments. In fact, during the last decade there is a Florida utility that has led the nation in these reductions.

To sum up, Tampa Electric's proposed DSM goals have been carefully developed in a manner fully compliant with FEECA and your implementing rule. The goals achieve the proper balance of being aggressive in the pursuit of demand and energy savings, but at the same time cost-effective and free of cross-subsidization for all of our customers.

Based on these facts and the other matters discussed in great detail in my testimony, Tampa Electric urges the Commission to approve the DSM goals that we have proposed. Thank you.

MR. BEASLEY: Thank you. We tender Mr. Bryant for cross-examination.

CHAIRMAN GRAHAM: Mr. Bryant, welcome.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: First, I guess, OPC, Mr. Sayler.

MR. SAYLER: Thank you. Good afternoon, Mr. Chairman and Commissioners.

EXAMINATION

BY MR. SAYLER:

Q Good afternoon, Mr. Bryant. Erik Sayler with the Office of Public Counsel. How are you doing this afternoon?

A I'm doing great. And yourself?

Q Oh, outstanding.

A Good.

Q Are you familiar with your company's response to OPC interrogatory number 10 where we asked "If the Commission approves the company's proposed DSM goals and becomes eligible for a reward per FEECA," are you familiar with that response?

A Yes.

Q And isn't it true or correct that the company responded, "If the Commission approves RIM-based goals as proposed, then the company does not believe utility incentives or rewards are needed"?

A That is correct.

Q Can you expand on or explain why you don't believe utility incentives or rewards are needed?

A RIM-based goals are the least cost approach; they put the least amount of upward pressure on rates. And so, therefore, if we accomplish those goals, we don't believe we should put additional burden on the ratepayers simply because we've already accomplished the least cost goals that are out there.

Q Okay. And that's true even if you exceed those RIM-based goals.

A Correct.

Q All right. With regard to rate impact, we had asked some interrogatories on that. There's -- those responses are in staff Exhibit 116. Are you familiar with OPC's interrogatories number 22 and 24 and the company's responses?

A Yes, sir.

Q All right. For the 1200 kWh customer what would the rate impact be in 2015 if the Commission approved continuing current goals?

A To continue the current goals in 2015 the rate would be, for 1200 kilowatt hours, the rate would be $3.75.

Q Okay. And similar question, if the Commission approved the company's RIM-based goals, what would the

rate impact be in 2015?

A There would be a decrease. It would be $3.43.

Q Okay. And then if the Commission approved the company's TRC goals, what would the customer rate impact be in 2015?

A I wouldn't characterize it as our TRC-based goals.

Q Okay.

A It's the TRC achievable potential.

Q Okay.

A But that rate impact in 2015 would be $3.78.

Q All right. And can you explain the difference between TRC achievable versus TRC goals? What's the difference between that?

A The difference is we were asked to put forth what our goals would be, and we put forth RIM-based goals. But we were also asked, by the Order Establishing Procedure, to put forth what the achievable potential would be for TRC, and so that achievable potential value is what we have calculated here.

If -- I would not suggest we do this -- but if TRC goals were adopted, then our achievable potential would, in fact, become our goals.

MR. SAYLER: All right. Thank you very much, Mr. Bryant. No further questions. Thank you,

Commissioners.

CHAIRMAN GRAHAM: Department of Agriculture.

MR. HALL: No questions.

CHAIRMAN GRAHAM: NAACP.

MR. DREW: No questions.

CHAIRMAN GRAHAM: PSC [sic], no questions.

FIPUG.

MR. MOYLE: Thank you. Thank you, Mr. Chairman. If I could get help with an exhibit, I'd appreciate it.

CHAIRMAN GRAHAM: Okay. I think we have a staff person or two that can help you with that.

This will be Exhibit 185. Thank you.

(Exhibit 185 marked for identification.)

MR. MOYLE: All right. I think everybody should, should have a copy of the exhibit.

EXAMINATION

BY MR. MOYLE:

Q Mr. Bryant, I've handed you what's been marked as Exhibit 185. Could you please identify this document?

A Yes. Part of the OEP that the Commission put forth for us to follow in terms of what was to be filed was the request to do sensitivities, one on fuel and one on payback. And so the two sheets attached there, one

indicates the RIM and the TRC sensitivities for fuel, and one indicates the RIM and TRC sensitivities for payback analysis.

Q Okay. And we've -- FIPUG has spent some time on the payback analysis, and I want to direct your attention to the last page of the exhibit. I guess it's marked at the bottom 76A.

A Yes.

Q And those are payback sensitivities with RIM and TRC; is that right?

A Yes.

Q Focus, if you would, on the, on the RIM, because you advocate that RIM be used; correct?

A That is correct.

Q And that's in part based on the long history of the Commission using RIM; is that right?

A That's correct.

Q So this chart shows the measures that would be affected based on a one-year screen or a two-year screen or a three-year screen; correct?

A Yes.

Q And then it also shows the resulting impact with respect to energy savings; is that right?

A Yes.

Q Okay. And I was curious as to whether there

could be an estimate or whether you were comfortable if I said, well, you know, if you assumed a three-year, what would that represent with respect to savings that might flow to those who are asked to pay for these measures? Could you answer that question?

A I can give an estimate. Excuse me. We were not asked, nor did we provide, the level of detail to take these payback sensitivities all the way to achievable potential. These were done, I believe, at an economic level. But I think it's, it's possible to look at the percentage differences that you see as you compare the count of measures, as you compare the annual energy, or the summer or the winter demand. If you look at the percentages that are changed from the base, then you could likely surmise that that's a rough estimate of what the savings would be from going there.

So, for instance, if you did it on an annual energy basis, you might suggest that the three-year payback would perhaps give a, roughly a 7 percent reduction in the rate that would be applied to accomplish a RIM portfolio with a three-year screen for payback sensitivity.

If you were to do it on summer demand, it would move to roughly 6 percent. If you did it on winter demand, it would be negligible. It would be

98 percent. If you happened to do it on the number of measures, although I wouldn't suggest that's the best way to do it, but you can see there that it's about a 12 or a 13 percent reduction from the base.

So across the board you're going to be somewhere in the neighborhood of probably 5 to 6 to maybe 12 to 13 percent reduction in cost for the ECCR if you were to utilize a three-year screen in order to establish achievable potential -- in fact, the RIM goals.

Q Okay. And Mr. Sayler from OPC had referenced, referenced an interrogatory answer. Did he give you a copy of that?

A Yes.

Q Okay. And in year 2015, it shows a decrease of 33 cents; is that right?

A Yes.

Q My math came, came to be about a 9 percent decrease represented by that. Would that be consistent with your thinking?

A Yes.

Q So would it be fair that if you said, okay, if the Commission decides to go with the RIM-based goals as you proposed and to use a three-year screen, based on the testimony you just gave, would you take the

9 percent that's reflected in this interrogatory and then add an additional 6 or 7 percent so that your net reduction would be between 15 and 16 percent in rates? Is that -- did you follow that math?

A Yes. Yes. I believe that would be a fair statement; a rough estimate, but a fair statement.

Q Okay. And in your opening statement, you said that one of the objectives is to make sure that there's not much pressure -- increase in rates; is that correct?

A Yes.

Q And to the extent that there are options that would still achieve the goals of FEECA that would reduce rates, would you recommend that those be seriously considered?

A I'm not sure I would recommend going to a three-year payback as much as I would detail the fact that there's going to be a reduction if you do go to three years.

The company's proposal is predicated on the principle that we have followed for a number of years, which has been the two-year payback principle that was put in place even before the '94 mega docket, as it has been described. In 1991 Tampa Electric gained approval of a program where there was a two-year payback screen placed for the level of the incentive that was paid. So

it's been around since early '90s -- 1991 in specific. So we're comfortable with that. But if the Commission, in their discretion, would make a decision that it ought to go to three years, then you would see the commensurate rate reduction that I was describing there.

Q Okay. And you've been here throughout the, yesterday -- you were here yesterday; right?

A Yes.

Q And you're familiar with Mr. Deason, and his testimony suggested that in some situations five to seven years might be appropriate as a screen; correct?

A I heard that. Yes, I did.

Q And, and the gentleman from Duke has suggested that businesses often times look for screens that are a little bit longer in their day-to-day operations; is that right?

A Yes.

Q The other, the other point that you made that I want to just spend a couple of minutes on is the cross-subsidization point. And does the TRC test result in cross-subsidization?

A It can certainly do that, yes.

Q Does the RIM test?

A That's the one that tries very hard not to, and I would submit that generally it does not.

Q All right. And then I want to explore a little bit with you the issue of, of measures. There's terms -- this is -- what's a measure?

A Well, we've heard a couple of them used on several occasions: One being a water heater blanket, one being a low flow showerhead, but then you have a heat pump, you have an air conditioner, you have things like. Insulation would be a measure.

Q Okay. And then there's also a terminology called programs; right?

A Uh-huh. Yes.

Q And is a program a subset -- I'm sorry. Is a, is a measure a subset of a program?

A Yes.

Q So the way -- just so I understand the terminology, when y'all say programs, a program could have three or four measures tucked up underneath it; is that right?

A It could have that, or it could be one measure.

Q Okay.

A But it has the opportunity for more than one.

Q All right. And there's been discussion about, well, the number of, the number of measures that would result if the company's proposals are accepted would be

reduced. And I'm curious as to whether there's a correlation between, between a reduction in the number of programs and the end result at the end of the day as to energy savings, and I would ask you to help me with that.

A Let me make sure I'm understanding your question.

The goals we're proposing are less because of conditions that I've stated in my testimony, but it generally would put forth a fewer number of measures. And so is your question, therefore, translated to the fact that there would be fewer programs or what happens to programs in terms of fewer measures and lower goals? Am I missing something?

Q No. No. I think you're on the -- I mean, I don't want to get hung up in the measures, in the programs.

A Right.

Q But if there's, if there's fewer programs -- well, let's just focus on measures. If there's fewer measures at the end of the day --

A Uh-huh.

Q -- is there a direct correlation between measures and the results of the program? I mean, I'm thinking that there's not because if you -- you could

have five programs, but if they were all giving you the biggest bang for your buck and you previously had eight programs or ten programs, you'd have a 50 percent reduction but you might not necessarily have a reduction in energy efficiency. That -- I'm trying to understand the correlation, if there is any, between the ultimate reduction in energy efficiency, which is the objective of FEECA, and the number of programs and measures.

A Okay. I think generally you can say that if there's going to be a reduction in goals because there's a reduction in the number of measures that contribute to those goals, then there will be likely a few -- fewer measures that end up in the programs.

On the other hand, when you develop your programs, depending on the aggressiveness of the goals, you're going to look for ways of having a measure that can stand on its own that can give you a significant amount of reduction and passes the RIM test. You're going to continue to promote that one.

You may have another program where currently there's five measures, and one of them, because of its small contribution to the overall success of the program, may come off the table because it drags down that program's cost-effectiveness. But, again, its

contribution is small and so its impact is going to be small as well.

But if -- you want the program to survive, and so you're working very hard at managing that program's cost-effectiveness so that you don't lose the other value that it brings.

So your programs that provide larger demand in energy reductions, generally they will survive. The ones that provide very marginal demand in energy reductions, they may or may not, depending on how you develop your program once the goals are set.

Q So you can make qualitative judgments about which programs give you the biggest bang for your buck based on your answer; is that right?

A I think so, yes.

Q And the same question with respect to measures?

A Yes.

Q And so there's not necessarily a direct correlation to the reduction, to a reduction in programs or measures as it would result in a reduction in energy efficiency?

A There may not be an absolute direct correlation.

Q Okay. I want to just ask one other line of

questions -- I'll check my notes, Mr. Chairman -- but do administrative costs, are they relatively the same for, you know, for programs? I mean, there was an exhibit shown yesterday where FPL was, had $108 administrative costs for a measure that costs less than $108. It was, it was an inexpensive measure.

A Right.

Q But I'm curious as to the administrative cost, whether there's a correlation between administrative costs and measures or, you know, maybe not.

A I would say probably not in our case. For instance, currently we have a lighting program for commercial customers, and we mitigate the administrative cost as much as possible by utilizing the contracting community to facilitate the program.

On the other hand, when we do energy audits, which we are required to do, those administrative costs are higher because it's -- there's got to be scheduling, there has to be follow up, there has to be documents provided, things of that nature, and so you have a greater administrative cost associated with supplying that into the marketplace.

Q Okay. And there's been a lot of testimony about measuring market penetration and what level of people participate in programs that you approve. And I

want to just make an effort to try to clarify one thing that is an assumption I've made. But the Chairman, the other day, said that he bought a CFL light. He didn't say whether he asked the utility for a rebate or sought any financial incentive. I assume that there are a number of people that in the market go out and buy products that they could get a utility rebate for but may not necessarily do that. I don't know what percentage it is. But would you agree with that so that, you know, the numbers that you're showing are interactions you've had with customers, but there very well may be others who have taken advantage of energy efficiency appliances or lightbulbs or other things that are not showing up because they didn't interact with the utility?

A I would say the case for that happening is quite small, and the reason for that is because of the contracting communities that we utilize to help us do the installs. And so we utilize contractors for insulation, we utilize them for lighting, we utilize them for HVAC. So it's very difficult for a customer to decide to install an HVAC piece of equipment, which you'll do it through a contractor, and for that contractor to not make them be aware of the incentive. In fact, the incentive is typically what drives them to

install the HVAC equipment, to the extent they install it at the efficiency level to qualify for the incentive.

Q So you answered the question with respect to the air conditioning program because you have to have a licensed contractor install it; is that right?

A They do, yes.

Q What about, do you have programs for window units, for AC window units?

A No, we do not.

Q Okay. The lightbulb program -- you do have lightbulb programs; right?

A We do not have a lightbulb program. We provide them through audits and through our low income activities.

Q Okay. If I didn't call and ask for an audit but was otherwise eligible and I went to Home Depot and bought one, that wouldn't show up in your system, would it?

A That's correct.

MR. MOYLE: Thank you. That's all I have.

CHAIRMAN GRAHAM: Thank you.

Sierra Club.

MS. CSANK: Thank you, Mr. Chairman. I do have a few questions for Mr. Bryant.

EXAMINATION

BY MS. CSANK:

Q Hello. How are you?

A I'm good. Thank you.

Q Good. I'd like to spend a bit of time on some real basics, foundations of why we have energy efficiency programs, and it'll relate to some earlier things that you've just been asked about.

So can you identify -- and I appreciate that you've been working on DSM for the company for a number of decades now -- can you identify some of the barriers that consumers experience with respect to energy efficiency measures, why they wouldn't adopt them?

A The incremental cost above what they would normally install would be a barrier.

Q Would you agree that imperfect information is also a factor?

A I'm sorry. Which kind?

Q Imperfect information.

A Imperfect? It's possible for consumers to have bad information, and so our effort is one to educate them on what is the right thing to be doing.

Q But generally there is, there may be a lack of accurate information. For example, not every product in the marketplace has labeling on the expected payback; is that right?

A I'm not sure about what the markings of all of the products are. I tend to go through appliance stores, for instance, and see them very clearly marked. So if you have a specific measure, I might be able to comment on that. But I think more and more what I notice in the marketplace is the potential savings is estimated on many, many of the appliances that are out there.

Q Would you submit that all products are labeled with their payback?

A To say 100 percent, all of them, it would be difficult to say yes to that.

Q Has TECO conducted any type of analysis of the products in the marketplace that are lower cost and whether they're labeled with their payback?

A We've done no analysis to determine if all products are labeled with their payback.

Q Thank you. So let's move on to another factor. Have you heard of split incentives? Are you familiar with that term, split incentives?

A No, I'm not.

Q It also goes back to the main, principal, the principal agent problem. So it's a situation where the individual who makes the energy efficiency-related investment decision is not necessarily the one who pays

for energy.

A Okay. I think I need more of an example. I mean, it almost sounds like you're talking about rental property.

Q So -- exactly. Landlord/tenant situation.

A Okay. I can understand that.

Q So you're familiar that generally in DSM programs there may be -- or, rather, measures, let's stick to measures -- there may be certain measures where there's a split incentive between the person who pays the bills and the person who's able to install that measure.

A Yes.

Q And isn't it also -- has TECO done any analysis regarding the amount of split incentives that appear in the company's service territory?

A I'm not sure I can answer the question in terms of split incentives. We know roughly how many, what I'll call, multifamily dwellings exist. The preponderance of those would be rental income places. And so to that extent, we have targeted our programs toward those types of facilities, not looking for the tenant to make the decision, although we do talk to the tenants about behaviors that they can impose or utilize. But we look to management companies, and then provide

the management companies with the opportunity to make a decision to invest in more efficient measures for their particular facility in order to make them perhaps more attractive to draw toward a greater occupancy of that, of that location.

Q I see. Could you please tell us a little bit more about that outreach to the management companies, if that's something you do systematically for all management companies or some subset?

A We have, over the course of time, worked our way through our service area, and we have a good handle on who the management companies are. And we make them aware of three very key opportunities for them to increase the value of their properties: One would be for insulation; one would be to seal the ductwork on the HVAC equipment; and the third would be for the HVAC equipment itself, to upgrade its, its efficiency.

Q And so does that outreach occur annually, biannually? How often does that happen? And does it include on each occasion all of the management companies?

A We have worked our way through the territory to all the management companies. We begin now to see a decrease in the decisions to embark upon those programs. But we have worked our way all the way, all the way

through. To the extent a new management company may take over a complex, we are aware of that because of our billing system. And so we would then make them aware of what those opportunities would be for them, and, yes, we would tell them of all three.

Q Do you provide any financial incentives to them?

A No, we do not.

Q And does the company have any way to track and follow up on whether, in fact, those management companies do install the recommended measures?

A Yes. Program participation.

Q And where is that information presented or reported?

A It's not isolated for what those particular management companies do or don't do, but it's part of our reporting of accomplishments to the Commission.

Q So that appears in the DSM annual report that you submit to the Commission?

A It would be included in those numbers, yes.

Q And can you tell us approximately what percentage of adoption you see?

A I cannot.

Q Okay. Let's turn to another factor, another barrier to energy efficiency measure uptake. Are you

familiar with the concept of credit constraints?

A I'll let you explain it.

Q So limited access to credit may prevent some consumers, especially the low income consumers, from making cost-effective efficiency improvement decisions due to the higher upfront cost of energy efficiency products or practices.

A Okay.

Q Is that something that would occur in the company's service territory?

A I would say, yes, it does.

Q Do you have any data or studies to identify how much it occurs?

A No, we do not.

Q Okay. Let's also talk about supply market imperfections. Are you familiar with that term?

A I think the best thing for me to do again is to let you explain it, and that way we are on the same page.

Q All right. Good. So that would be an instance where energy -- the market for energy efficiency products is incomplete. Manufacturers may not have perfect information about consumers' preferences, and so they may not put out into the market a full menu of products that consumers may desire. Does

that, does that sound like a problem that may occur or an issue that may occur in the company's service territory?

A I would suspect it probably occurs to some extent, yes.

Q And has the company, in the decades that it has used the two-year payback screen as a tool, investigated how much this particular issue comes up?

A I'm not sure it would come up in terms of using a two-year payback screen as much as it would come up in simply knowledge about what you have customers requesting by way of your communications with them and then having knowledge about what may or may not be available in the marketplace.

Q All right. You've been here throughout the hearing and heard the questioning this morning of Witness Duff.

A Yes.

Q And so if I may turn your attention to Exhibit 182. Do you have that?

A No. If that was an exhibit that was utilized for him, I do not have a copy.

MS. CSANK: Okay. May I approach the witness?

CHAIRMAN GRAHAM: Yes.

THE WITNESS: Thank you.

BY MS. CSANK:

Q So if you'd please turn to a page that's Bates numbered DEF-DSM-04066, and just recall that this exhibit is the Duke Energy Florida 2013 Residential End-Use Study.

A 04066?

Q Yes.

A Got it.

Q So this is a survey that the, that the Duke Energy Florida company conducted to anecdotally study how much market penetration there was of various measures. Many of them are low-cost measures that probably would qualify as two-year payback measures as we went over this morning. Has your company conducted such a survey?

A I don't know where the origin of this comes from. If it's the Customer End-Use Survey, then we have been required by this Commission to provide an end-use survey, I believe it's once every four years. However, I, I don't know where this one comes from.

Q Sure. I'm asking about your company and whether you've performed such a survey in the last four or five years.

A To my knowledge, no, other than the end-use survey that we do to adhere to the rule of this

Commission.

Q And when was that last performed?

A I don't remember.

Q Do you recall the results?

A No, I do not.

Q Okay. So because we don't have other Florida-specific data other than this anecdotal survey, which I believe 3,300 or so Duke customers responded to, let's take the example of the low flow showerheads. Do you see that in the top row?

A Yes.

Q What was the total Florida penetration rate for that measure? That's the first column. Do you see that number?

A Yes. 37, 37 percent.

Q Right. And if you look down that column, there are a number of measures that are -- have far lower penetration rates; right? Can you see?

A Yes.

Q In the single digits even?

A Yes.

Q And as far as you recall, your company hasn't conducted any such survey and has no information to verify whether, in fact, in your service territory penetration rates are any higher?

A We have nothing to deny or confirm these numbers.

MS. CSANK: Okay. Thank you. That concludes my questioning.

CHAIRMAN GRAHAM: Okay. SACE.

EXAMINATION

BY MR. GUEST:

Q Let me just see if I can't shorten this and ask you, you've heard what the folks have said before you about the four measures we talk about -- the hot water heater blanket, the aerators, the showerheads, and the pea traps -- you heard all that.

A Yes.

Q Now it's true, isn't it, that as to all four of those measures, they failed all of your cost-effectiveness tests -- RIM, TRC -- both of them; correct?

A Subject to check material, I would say probably yes.

Q Okay. All right. Now then -- okay. Now let me turn to your low income programs.

A Okay.

Q What percentage are you reaching there? Do you need something to look at?

A Pardon me?

Q Do you need something to look at, or do you know the answer?

A I will look on what you have so that we can talk from the same sheet of music.

MR. GUEST: Okay. Let's try moving in -- this is going to be SACE's first response to staff, which is an excerpt of PSC-135. So that would be 186.

CHAIRMAN GRAHAM: 186. And what did you call this?

MR. GUEST: 160 -- I'm sorry.

CHAIRMAN GRAHAM: No. It's Exhibit 186. What was the title you gave it?

MR. GUEST: Oh, I'm sorry. It's that -- it's the Tampa Electric Company Summary of 2013 Demand-Side Program Accomplishments.

CHAIRMAN GRAHAM: All right. Thank you.

(Exhibit 186 marked for identification.)

BY MR. GUEST:

Q Okay. Just quickly, can you look at page 13.

A Okay.

Q And you, I see you've got about 120,000 eligible customers. Do you see there, it's the bottom of the center table, column C?

A Yes.

Q And that's your cumulative penetration level,

6.5 percent; is that right?

A Yes.

Q Okay. Now let me turn to --

A If I might make a comment though. You're absolutely right, the numbers speak for themselves. Keep in mind, this program was initiated in the latter part of 2010, early 2011. And so to the extent that was its initiation, the uptake on that program was a tad slow as it began, but now we're beginning to see the penetration rates advance beyond that.

And so where we see in the fourth year, which is last year, where we have over 4,000 participants, that number will likely sustain itself and grow as the, as the years go ahead. And that is our plan for the low income programs. I just wanted to qualify that in terms of its immaturity, if you will, but as it grows in the marketplace.

Q It shows you starting in 2008. Is that what that document shows?

A It says it started in 2008, and it was re-formed into the fashion that these numbers are representing in 2010/'11, right in that range.

Q Okay. Now you heard me asking this question about the rates test always being -- dealing with the peak loads issue. Do you agree with me that all of your

measures for residential housing that pass the RIM test are all about heating and cooling? Would you just agree with me without looking at it, or do you want to look at it?

A Now let me make sure I understand. Are you asking all the measures included in the low income program passing RIM?

Q No. I'm sorry.

A Okay.

Q No. I'm switching to a new topic.

A Okay.

Q That's right. I'm just talking about the RIM versus the TRC issue.

A Okay. Okay.

Q What I've been asking folks is that's always dealing with peak loads issues, and I'm just asking you simply if you look at your residential measures and the achievable potential, they were all heating and air conditioning; right?

A That is -- in the potential? I would need --

Q Achievable.

A Pardon me?

Q Achievable potential.

A Yes. I would need to look at what the measures are. I cannot definitively say they're all

HVAC.

Q Okay. So let me turn then to -- what's the document number here? This is an excerpt of PSC-109.

CHAIRMAN GRAHAM: Okay. We'll give it a number of 187.

(Exhibit 187 marked for identification.)

BY MR. GUEST:

Q 187. And this is Tampa Electric Company's response to staff's second set of interrogatories, interrogatory number 25. I'd ask you simply to look at page, page 1 of, of the charts.

A Would that actually be the third page in the packet?

Q Actually I think it's farther than that. It's highlighted. That's might --

CHAIRMAN GRAHAM: It's the fifth page back.

MR. GUEST: Fifth page?

THE WITNESS: I see a highlighted section further in the document. At the bottom it is entitled -- or it's labeled page 1, and it says, "RIM Achievable Residential."

BY MR. GUEST:

Q That's it.

A Yes.

Q I just want you to confirm for me -- you said

you wanted to look at it -- they're all about heating and cooling.

A Most are specifically about heating and cooling measures. Some of them are about complementary measures that are associated or that have an impact or their impact will be affected by the efficiency of the heating and cooling measure that's being evaluated.

Q Thank you. Thank you. All right. Let me just, just go to one more issue, which is the -- if you can turn to something I think we, we -- this is an excerpt from -- this is an excerpt from PSC-108, which will be 188.

CHAIRMAN GRAHAM: That's correct.

(Exhibit 188 marked for identification.)

BY MR. GUEST:

Q Okay. And this is Tampa Electric Company answer to staff's first set of interrogatories, interrogatory number nine. I'm going to do a little calculating here. Do you need a calculator?

A I'm going to trust you.

Q Okay. All right. Are you with me?

A Yes, sir.

Q Okay. Let's turn, if you would, to what I think is the fourth page, which would also be the last page.

A Okay.

Q Whoops. You've got to go to the page before that.

A Okay.

Q So I'm looking down at the, at the bottom table there.

A Yes.

Q I'm looking at the annual energy row at the very bottom.

A Yes.

Q And I'm on the RIM path. And this is the measures before they are screened out by the two-year screen. If you turn to the next page, you can see that.

A That's correct.

Q Okay. So that first number is 3,516.

A Yes.

Q And then you compare that to the next page and it shows that after the two-year payback you're down to 2,933.

A Correct.

Q So that's a difference of 582.

A Okay.

Q And then if you added all the measures that were cut out by the two-year payback and you added them to your achievable potential, that would be 582 plus

144 would be 576.

A Your math is correct, but it's an exercise you cannot do. And here's the reason why.

Q Let me finish before you explain.

A Well, I think I'd like to clarify your statement so we get clarity on what you're saying so that we understand the differences here, if I could.

Q Go ahead.

A The difference is the achievable potential -- I'm sorry. Let's start with the economic potential. As you go down through these charts until you get to achievable potential, that's done off the construct of the technical potential, which is a theoretical construct. So, therefore, it doesn't have a time element to it, it just has a total amount to it. When you get to the achievable, it has a ten-year period to it. And so they're -- the ten-year period has an adoption rate that's been modeled for the measures that are contained in that achievable. That's not the case with the other tables. So there is a slight distinction there that I think is worth clarifying.

Q I see what you're saying. I understand that. But just to finish that point, so you start with 144 as your achievable potential. But if you added in all the measures that got screened out on the two-year screen,

your total would be 576, which is actually five times higher. You agree about that.

A I'll take your math, but it's certainly higher.

Q Yeah. And I understand your point. I think your point is that not everything -- you wouldn't get 100 percent on everything in those two-year screens.

A Correct.

Q Yeah. That's your point.

So let's just do quickly the same, the same exercise with the TRC. And what I count here is -- on the page before your economic potential is 4,495.

A Yes.

Q And then what you end up with after the two-year payback is 3,362, which leaves you with 1,133. Does that look about right?

A Yes.

Q Okay. And then if you add that to your achievable potential, you end up with 14,000 -- no, 1,402, roughly 1,400.

A Roughly.

Q And that's, again, it's about five times larger.

A Yes. There's also one key step that's missing in all of these tables, and that's the fact that when

you go down to the achievable, you have to recognize that that has been calculated by applying the appropriate incentive to these measures. And so we just need to recognize that the numbers at the bottom are driven by an incentive. The numbers above that are not driven by an incentive.

Q I get that. I see your point.

So let me just turn finally to one point, which is that -- related to this -- which is that you started off with a total technical potential of, I think -- can I get it out of this same exhibit? Let me see if I can get it out of this one. I'm going to have to use a different one, another excerpt, which we'll call -- this is an excerpt of 108, and we'll call this one 189, which is Tampa Electric Company's staff's first set of interrogatories, interrogatory number eight.

CHAIRMAN GRAHAM: Number eight, did you say?

MR. GUEST: Yes, number eight, which is really 108. Okay. That's what it is. It's an excerpt. I just have one, one issue to just round out here.

(Exhibit 189 marked for identification.)

BY MR. GUEST:

Q So I'm on the third page of 188 [sic]. I'm on 189. I'm sorry. I messed up here.

I'm just simply going to compare here -- I'm

sorry. I'm on the table, which is the last page of 189.

A Right.

Q So if you just -- I'm comparing again, as I've done before, the total technical potential for renewables and energy efficiency. You add those two numbers up and you get to --

A You get to some 15,000, but you cannot add those numbers together and use 15,000 in any meaningful way.

Q Well, I hear you. So we start with about 15,000, and then you end up with 144.

A I will not, I will not acknowledge that 15,000 is a number reasonable to start with and drop down to. You have to understand the differences of the three components of the technical potential. There's energy efficiency, there's demand response, and there's renewable. And the Technical Potential Study developed by Itron indicated that these numbers cannot be additive because there's an interactive effect between measures that are in each of those baskets, if you will. And that means that, it simply means the interactivity does not lend itself to a direct summation of what each measure can provide from top to bottom. You cannot do that. You have to stay isolated, again, because of the interactive effect.

And so to compare to the information, I think, over here in the previous exhibit, which is Number 188, to compare there to what is over here in these and to sum them up I think would be an incorrect math problem.

Q I understand fully what you're saying. I guess what I'm kind of asking in the broader picture is that in the context of having federal rules that look like you're having to have a huge amount of energy efficiency and a huge amount of solar, my point is simply that if you look at your total technical potential and you compare that to the total achievable using RIM, you're ending up at about 1 percent. And if you do it using TRC, you end up at about 2 percent. And that's the contrast I'm suggesting is that if you look at where we have to be in 16 years, this isn't getting at all there in the ten, is it?

MR. BEASLEY: Mr. Chairman, could we, could we interrupt and ask for a question as opposed to a talk?

CHAIRMAN GRAHAM: Is there a question?

MR. GUEST: Yeah.

BY MR. GUEST:

Q The question is doesn't this relate to the issue that you're going to have a huge, much larger amount of efficiency and a much larger amount of renewables in sometime around 2030 and you're at

1 percent here? Doesn't that signal that a whole lot more of that technical potential is going to have to move into achievable somehow?

A I don't understand the relevance of 2030. Help me there.

Q What I mean is that if you look at the proposed EPA rules and talk about what Florida has to do, what it says is that there's going to have to be this huge gain in efficiency and solar before --

A Before, before we can speculate on any probability that those rules will be implemented in the manner in which they've been published, I think we need to wait and see for several steps that will likely occur: One being litigation and, two, how the State of Florida actually goes about implementing whatever the rule that they have to follow is indeed going to be. And so that's -- it's premature to suggest that by 2030 we can arbitrarily look at 1.5 percent of these numbers and say you're grossly under.

Are we under if it was 1.5 percent? From a math problem, yes. From a policy, we need to wait on policy to be implemented so we can look at what the cost is and the policy is really going to be -- or the regulation, if you will.

MR. GUEST: I understand your point. I don't

believe I have anymore questions. Thank you.

CHAIRMAN GRAHAM: Thank you. EDF.

MR. FINNIGAN: No questions, Your Honor.

CHAIRMAN GRAHAM: Thank you, sir.

Staff.

MS. TAN: Staff has no questions for Mr. Bryant.

CHAIRMAN GRAHAM: Commissioners. Commissioner Balbis.

COMMISSIONER BALBIS: Thank you, Mr. Chairman, and I'll be brief.

First of all, you know, thank you for coming here, and I appreciate your testimony, especially the details and the sensitivity analysis associated with the pilot programs, the solar pilot programs, which I want to get into a little bit.

THE WITNESS: Okay.

COMMISSIONER BALBIS: You indicated that -- and I'm not going to discuss the solar water heater program because that doesn't even pass the Participants test, but I want to focus on the PV programs.

You indicated that for the programs to pass the TRC test, the cost per kilowatt has to go down to $1,201; correct?

THE WITNESS: Yes.

COMMISSIONER BALBIS: And I believe you, you stated that it was a significant drop or something to that effect.

THE WITNESS: Yes. Yes.

COMMISSIONER BALBIS: But you have seen significant drops over the past few years in net cost.

THE WITNESS: Yes. True.

COMMISSIONER BALBIS: Did you consider possibly sunsetting the program assuming those drops will continue, and by using that estimate by 2016, for example, so the subsidies aren't needed?

THE WITNESS: Let me address what I think is going to happen to the cost of PV and maybe that'll help us out.

There's two major components to the cost of PV: One being the panel itself, and then the other being the structure and the other items that accompany it. In other words, the balance of the, of the material, things of that nature, as well as the contractor costs associated with installing that.

We've seen the PV panel prices decrease for a couple of reasons. There's been material brought over from the China market, and even within the United States there's been additional PV, more than what's been needed in the pipeline, so to speak, and so that has brought

panel prices down. The interesting aspect though is the fact that panel prices are about roughly 30 to 40 percent of the total install cost. So that leaves the other 60 to 70 percent to have the, you might say, market forces have application there. And so the question we have to ask is will the contractor costs go down, and/or will the other hardware and associated pieces that, that are necessary for the install, will they go down? That's the bigger piece of the total cost.

And I would suggest that we're not going to see those go down precipitously, so to speak. In fact, over time I would suggest that those costs will probably continue to rise at some inflationary level. But the PV panel price, the 30 to 40 percent piece, may still have some room to go down. It may, in fact, will go down.

Now taken together do we see that combination getting down to the point to where it will be cost-effective? The issue is will it go down to roughly, in today's evaluation process, will it go down to about $1,200? That's going to be a little difficult. I'm not saying it won't, but it's got a ways to go from what we have seen this past year, which was the $3,400 amount, and what we have seen in 2014 to date, which is still above $3,000. So it's beginning to slow, the drop

in the PV cost. And I think it's because we're seeing panel prices slowing, and we're seeing the other balance of those costs not necessarily dropping, perhaps at best staying flat, and so that combination may not take the total cost again down to where it can be cost-effective on a cost-effective basis for TRC, for instance.

COMMISSIONER BALBIS: So the most recent data for 2014, you indicated, was around $3,000?

THE WITNESS: Subject to check, it's still above 3,000, yes.

COMMISSIONER BALBIS: Okay. But the best-case scenario for PV installers would be for it to continue on that same path of about a thousand dollar drop per year roughly?

THE WITNESS: If it was to reach 1,200 bucks, the economics would suggest, as we evaluate it today, that it would be cost-effective next year. Other aspects of cost-effectiveness will change; avoided unit data, things of that nature, will change. At that same time you want to incorporate what is the cost on the, to the customer, to the installed cost, things of that nature, and you want to bring that into the equation. And so what the dynamics will be at that point in time we don't know.

What Tampa Electric and as well, I'm sure, the

other utilities do is they evaluate these measures on an annual basis, because you're looking to see is there another measure that will become cost-effective or, in fact, will solar become cost-effective? And so we will do that, but it's still going to take some significant changes in costs in order for that to happen.

COMMISSIONER BALBIS: Okay. So to clarify the $1,200 cost where it would become cost-effective under the TRC test, is that still continuing the subsidy program or eliminating it?

THE WITNESS: No, that has nothing to do with the subsidy. Because the TRC -- and when you say subsidy, I'm assuming you mean the incentive we're paying?

COMMISSIONER BALBIS: I like to call it subsidy.

THE WITNESS: Okay. And I appreciate that because I call it the same thing.

No, it does not include the subsidy because the TRC test is indifferent to the subsidy. It simply says what's the cost for all parties concerned, be it the customer or the utility, and then what does it measure -- or it's measured against the benefit side of the equation. And so the subsidy is not going to matter. It's got to be the cost of the equipment, its

total cost, indifferent to subsidies, indifferent to anything, just total cost, what must happen.

COMMISSIONER BALBIS: Okay. Then going back to your previous point, if you -- if the cost follows the same path, you indicated that next year it would be at the $1,200 number. I thought you said that. I just --

THE WITNESS: No. If I said that, I was incorrect.

COMMISSIONER BALBIS: Okay.

THE WITNESS: What has to happen is the cost must get to $1,200 on a per kW basis in order for it to have any hope of being cost-effective under the TRC scenario today.

COMMISSIONER BALBIS: Correct. And I'm just talking about the timing. I'm still considering the sunsetting option, if you will.

THE WITNESS: Okay.

COMMISSIONER BALBIS: And when -- you know, following that, just doing the math at about a thousand dollars per kW drop, it would be like 2016 -- I mean, yeah, a thousand dollar drop per year.

THE WITNESS: Could be. Sure. Right. Right. If it could do that, that would be when it would get down to roughly the number 1,200. But then at that

point in time, let's assume it is 2016, at that point in time on the benefit side of the equation we don't know what the avoided unit is going to be for evaluation purposes, we don't know the timing of that avoided unit, we don't know the fuel costs associated with that avoided unit, and so we don't know the benefits. It could be that the price could -- it may need to be higher -- I'm sorry. The price, it may be cost-effective from a TRC basis, it may not be. But you've got a missing element; you've got speculation as the price drops, but you certainly have a missing element on the benefit side of the equation, the avoided unit data for what it will be in 2016.

COMMISSIONER BALBIS: Okay. So the best-case scenario then for a participant would be the avoided unit stays the same, it continues this drop, the program is eliminated, it's cost-effective, and no other customers are harmed because the subsidies have ended.

THE WITNESS: Until the solar technology, the PV technology passes the RIM test, we will not reach the point to where some customers will not be harmed. By definition, RIM test does that. By definition, TRC lets subsidies into the marketplace.

COMMISSIONER BALBIS: Correct. But -- I agree. And then the next thing is as far as the concept

of this program affecting or stimulating the marketplace, do you feel with having 57 and then 70 and then 65 participants is having an effect on the marketplace for PV?

THE WITNESS: I would suggest it's not having an effect on marketplace for two reasons. Those customers have typically been waiting in line for the offering of the subsidy. And when that offering has been made available, they quickly subscribe to the money that's available on a quarterly basis. And so those customers were going to do it anyway. They didn't need the subsidy in order to do that. That's the first point.

And I forgot the second one. I'm sorry. I apologize. But -- oh, the second reason I don't think that the money and these people are being impacted because of the subsidy is because on a national basis PV is dropping.

And so the experiment here was to determine if we infused the marketplace across the State of Florida with some almost $25 million for renewable technology, could we move the marketplace? Would we see it move here? And could we see it move absent what was happening across the nation? I think the answer is no because PV has dropped in price across the entire

nation. And, therefore, I would submit that our subsidy, our incentive, if you will, has not done anything to move the marketplace here. It's naturally moved across the country, and Florida has simply moved in lockstep with the country.

COMMISSIONER BALBIS: So then if the program is eliminated, as is in your proposal --

THE WITNESS: Yes.

COMMISSIONER BALBIS: -- you don't believe that the continued drop in PV pricing will change.

THE WITNESS: I think it will continue to drop, and it'll have to -- and to the utility's perspective, we will evaluate it on an annual basis to see whether or not it could be utilized as a demand-side management measure. Right now it's not appropriate for demand-side management in terms of the definition of demand-side management and the cost-effectiveness tests in which we employ.

COMMISSIONER BALBIS: Okay. Thank you.

THE WITNESS: Sure.

CHAIRMAN GRAHAM: Commissioner Brown.

COMMISSIONER BROWN: I'm going to just defer to Commissioner Brisé. He has a follow-up, I think.

CHAIRMAN GRAHAM: Okay. Commissioner Brisé.

COMMISSIONER BRISÉ: Thank you. Just a

follow-up on Commissioner Balbis' questions. My interest is rate impact to the full body of customers. So what, what does it cost the full body of customers for this incentive, for this incentive for the full body and, if you know, for individual consumers?

THE WITNESS: Yes. I can give you a fairly close estimate on that for both the incentive and the subsidy.

As we spend, as we spend 1.5, have been spending $1.5 million a year on average, as we've been required to do, that impact on a residential customer is roughly 8 to 10 cents per kilowatt hour for that expenditure on a monthly basis for that entire year. The reason I know that is because our ECCR charge on the customer bill will inflate or will cause -- for every $180,000 that's going through that clause, it impacts the rate by one penny. So you can do the math, take 180, divide it into, and you should get there.

COMMISSIONER BRISÉ: Okay. And what is that customer getting for the ten cents that they're paying?

THE WITNESS: On a net basis all participants are getting less than what they're paying for because it's not passing the RIM test. And, in fact, it's not passing the TRC, but more importantly the RIM test.

COMMISSIONER BRISÉ: All right. Thank you.

THE WITNESS: Sure.

CHAIRMAN GRAHAM: Commissioner Brown.

COMMISSIONER BROWN: Thank you. Just a quick question. In lieu of sunsetting the pilot solar program, has TECO contemplated doing what FPL has proposed, a community solar project?

THE WITNESS: Tampa Electric is grappling -- that's a great question. Tampa Electric is grappling with what it should be doing because --

COMMISSIONER BROWN: I'm sorry. I can't hear you. There's some chatter going on.

THE WITNESS: I apologize. Tampa Electric is grappling with what it should do going forward for this reason: It's clear that the statute in 2008 said, as it was amended, it said to have a focus on renewable energy. The statute has said from the early '80s to have a focus on DSM, then renewable energy was added. In the past when things have not been cost-effective from a DSM perspective, the Commission has seen fit that the utility in four or five occasions, as I recall, to have no goals.

Okay. Now we have renewable energy in there as a requirement now to have a focus, and we have followed that same pattern in the sense that there are no measures that this pilot has provided to us that

indicates that there is cost-effectiveness from the typical standard rule required cost-effectiveness methodologies, but it still says what should be the focus.

Utilities that have had zero goals for DSM when no measure has been cost-effective still have indicated that they will have some level of DSM that they will provide to their customers. And so now you take that philosophy over here to the renewable area and you say, okay, should the goals be zero? We think it should be from the standpoint of DSM because nothing is cost-effective. But then what should we be doing?

We need to think of a way in which to no longer be subsidizing whatever the expenditure happens to be. Is there value on renewable? Let's go to the bigger picture. Will renewable go away, solar PV? No. And I say solar PV; there is no such thing as solar PV, it's just PV because there's no moon PV, but nevertheless. So will PV go away? No, it will not.

And so we're going to have to grapple with its deployment into our service area. Should that be done in terms of the customer perspective or should it be done from the utility's perspective? We're looking at what is the right thing to be doing because it is out there and we need to know what its impact is going to be

on our system.

We understand what the impact is on a customer-specific basis because we have many -- we have, I think it's in the neighborhood of 800, 800 customers who are net metered right now, so we know that impact. But the question becomes when the systems get larger and if they are to be deployed either on a utility scale or on a commercial scale where a facility perhaps allows you to be on their rooftop and have a very large PV array, what's going to happen to the integrity of your distribution system? What's going to happen to its reliability? Those are questions we do not have answered, and we're thinking through how's the right way to develop those answers? Because if you deploy it in such a manner that you create an unreliable situation, you have not done justice to your general body of ratepayers, if you will, because you don't know what's going to happen on a systemwide basis. You can't just proliferate because.

So we're thinking in terms of how do we study that? How do we have a deployment that's not exorbitant in cost but yet begins to give us answers to those questions? That's what we're looking for, that's what we're looking at, and we recognize it's a need, it's a need, and that's the direction we're headed.

COMMISSIONER BROWN: Thank you. Very informative.

THE WITNESS: Sure.

CHAIRMAN GRAHAM: Commissioner Brisé.

COMMISSIONER BRISÉ: Sure. Thank you, Mr. Chairman.

One final question. How many adopters do you have? How many adopters does TECO have in terms of PV?

THE WITNESS: Yes. I'll give you three years of history.

COMMISSIONER BRISÉ: Sure.

THE WITNESS: And I don't know what 2014 has so far this year. But in 2011, when we had a full year of providing, in your case, the incentive, it was 57.

COMMISSIONER BRISÉ: 57.

THE WITNESS: In 2012, it rose to 70. In 2013, it was 65.

COMMISSIONER BRISÉ: Okay. So let me make sure I get this right. So you have 57 and then 75 or 65 and so forth, and so the whole body, the full body of ratepayers are paying, in essence, ten cents a month to incent this universe of, of --

THE WITNESS: That is correct.

COMMISSIONER BRISÉ: Okay. Thank you.

CHAIRMAN GRAHAM: Okay. A couple of questions

for you. Residential weatherization and energy -- I'm sorry -- and agency outreach.

THE WITNESS: Yes.

CHAIRMAN GRAHAM: What is that program?

THE WITNESS: That's a program where we do a couple of activities to be sure that we are reaching in particular the low income folks.

We do it a couple of ways. One way is to utilize census data to identify where folks live. We notify folks in that particular area that there is a day coming in the near future when we will put a contractor in that community, and that contractor is going to be made available and will, in fact, walk the community and be ready to install six or eight specific measures. Those measures would be low flow showerheads; those measures would be insulation, if necessary; it would be duct repair, if necessary; it would be a brush to clean the coils on the refrigerator; a thermostat. If there happens to be a wall unit, if you think about a wall unit or a window unit, I should say, there's normally not a degree setting on those. It just simply has numbers, one, two, three, four, five, six. And so the question becomes what's the right temperature, what's the right number to set that at? And so we provide a thermometer and instruct the customer such that they

need to run the unit in the room where it's located to maintain 78 degrees for cooling as an example. We give energy saving tips upon the utilization of other appliances that may be in that particular home. We do weatherization, we do caulking. And so those are the items that are components of that particular effort. And it's done, as I said, on an announcement basis in an area where the low income folks, by census data, have been identified. That's one element.

Another element of the overall effort is an educational outreach. And in that manner what we are doing is we're working with community centers, we're working with agencies that are the overseers of various housing complexes for the low income folks, and we're, and we're going to those places and we're looking for the opportunity then to provide certain low income -- I should say low-cost measures there as well. And that would be the low flow showerhead; the aerators; it would be the water heater wrap, if it's appropriate; and it would be cleaning the refrigerator coils, things of that nature.

And I focus on the water heater wrap in terms -- I know I mentioned if it's appropriate. One of the things we need to understand about water heater wraps, water heaters have increased in efficiency since

the early '80s. The first major change was in late '80, early '90s and it stepped up its efficiency. In other words, the insulation around that water heater became more efficient. The last change was in 1996 when, in fact, it was increased more. And so now water heaters that have been developed and deployed subsequent to 1996 today have the same insulation that was back then, but that insulation is at the 93 percent efficiency level. And so it is no longer cost-effective to be wrapping water heaters that have been manufactured subsequent to 1996, and so we don't do that. And so when we go into these communities and recommend for anybody, for that matter, on our audit program whether or not they should wrap a water heater, the first thing you want to know is when was that water heater manufactured, and you can tell and we do. And if it's subsequent to '96, then don't spend your $20 or $21 on a water heater blanket because it's not cost-effective. And so that's the key.

Last year we did about 4,000 low income homes and we only wrapped about 40 water heaters. That meant that there was only about 40 water heaters that were older than 1996 and did not -- and required it. The balance did not require it. So you spend money appropriately, not needlessly.

I have a problem -- I'm getting on, I'm

getting on my soapbox, and I apologize. I have a problem going to Lowe's where they advertise things and say, well, it's 21 bucks and you can save X amount of money. The real question is when was, when was your water heater manufactured? Because if it was subsequent to '96, you don't need to spend your 21 bucks, which is the correct number, by the way.

CHAIRMAN GRAHAM: Okay. You got a little ahead of me, but --

(Laughter.)

THE WITNESS: I apologize.

CHAIRMAN GRAHAM: That's quite all right. But those are two separate programs you're talking about: The weatherization and agency outreach and the energy education outreach.

THE WITNESS: Right.

CHAIRMAN GRAHAM: Now the energy -- well, first of all, the weatherization outreach, so for the most part those things that you provide there are the things that would not pass the two-year payback.

THE WITNESS: In other words, they pay for themselves in less than two years typically, yes.

CHAIRMAN GRAHAM: Okay. The education outreach, is that just low income or is that everybody?

THE WITNESS: It's everybody. It's

designed -- it'll work in either case. In other words, if we can go to a community center which facilitates the needs of the low income folks, then on certain days that are prescribed we will indeed provide tips, provide -- we'll make a presentation and we'll show things. Not only that, we'll bring what I'm going to call a modified kit to those presentations. And it's going to include the low flow showerheads, it'll include the wall thermometer thing, it'll include a whistle to put on an air filter. Because when the air filter -- we don't always do a good job changing our air filters. So when the whistle blows, then it's time to change your filter or clean it. So we'll provide things like that.

CHAIRMAN GRAHAM: Now there's another program that's low income water heating. Is that solar water heating like the other utilities?

THE WITNESS: Yes. Yes.

CHAIRMAN GRAHAM: Okay. A couple, two other questions. On here I see ceiling insulation. Is that more than a two-year payback or is there something --

THE WITNESS: Yes. Yes.

CHAIRMAN GRAHAM: And the residential window film, is that also more than a two-year payback?

THE WITNESS: Yes, it is.

CHAIRMAN GRAHAM: Okay. I believe that's all

the questions I had.

MR. GUEST: Mr. Chairman, some issues came up here that were new that I would like to ask a few questions on. May I?

CHAIRMAN GRAHAM: You've already had your chance.

MR. GUEST: Well, when you guys raise new issues that I think would be, would clarify some of his answers that were, I submit, are inconsistent with what they gave us in answers in interrogatories, that were not the subject of direct or cross, I submit that it's fair for us to go into only issues that were never raised on direct or cross here.

CHAIRMAN GRAHAM: Once again, we've already passed you. Anything else you want to put in you can put in your brief.

We are to redirect.

MR. BEASLEY: No redirect, sir.

CHAIRMAN GRAHAM: Okay. What exhibits?

MR. BEASLEY: I would move the admission of premarked Exhibit 45.

CHAIRMAN GRAHAM: Okay. The other exhibits.

MR. MOYLE: FIPUG would move 185, which is the TECO payback and fuel sensitivity document, a three-page document.

CHAIRMAN GRAHAM: TECO, any problem?

MR. BEASLEY: No objection.

CHAIRMAN GRAHAM: Okay. Who's 186?

MR. GUEST: 186 through 189.

CHAIRMAN GRAHAM: 186 through 189. TECO?

MR. BEASLEY: No objection.

CHAIRMAN GRAHAM: Okay. We will move 85 [sic] and 186 through 189 all into the record, and 45 also into the record.

(Exhibits 45 and 185 through 189 admitted into the record.)

I believe we're done with this witness.

MR. BEASLEY: Yes, sir.

CHAIRMAN GRAHAM: It looks like a good time to break for lunch. I have 1:35 on the clock back behind us. Let's be back here in -- do we need 45 minutes or an hour? Okay. We'll be back here at 2:30 on my clock back behind you.

(Recess taken.)

(Transcript continues in sequence in Volume 4.)

STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, LINDA BOLES, CRR, RPR, 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' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 7th day of August, 2014.

LINDA BOLES, CRR, RPR
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