DUKE ENERGY FLORIDA

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June 10, 2014

BY ELECTRONIC FILING

Ms. Carlotta Stauffer, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket No. 130200-EI
Commission review of numeric conservation goals (Duke Energy Florida, Inc.)

Dear Ms. Stauffer:

Enclosed for filing, please find the Rebuttal Testimony of Mr. Tim Duff (no exhibits) and Mr. Ben Borsch (no exhibits) submitted on behalf of Duke Energy Florida, Inc.

This filing is in compliance with the Order Establishing Procedure dated August 19, 2013, the Order Establishing Issues List dated April 7, 2014, and the Commission's Electronic Filing Requirements.

Thank you for your assistance in this matter and please let me know if you have any questions.

Sincerely,

Dianne Triplett

DT/at
cc: Certificate of Service
Enclosures

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was served on the following via electronic mail this 10th day of June, 2014.

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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

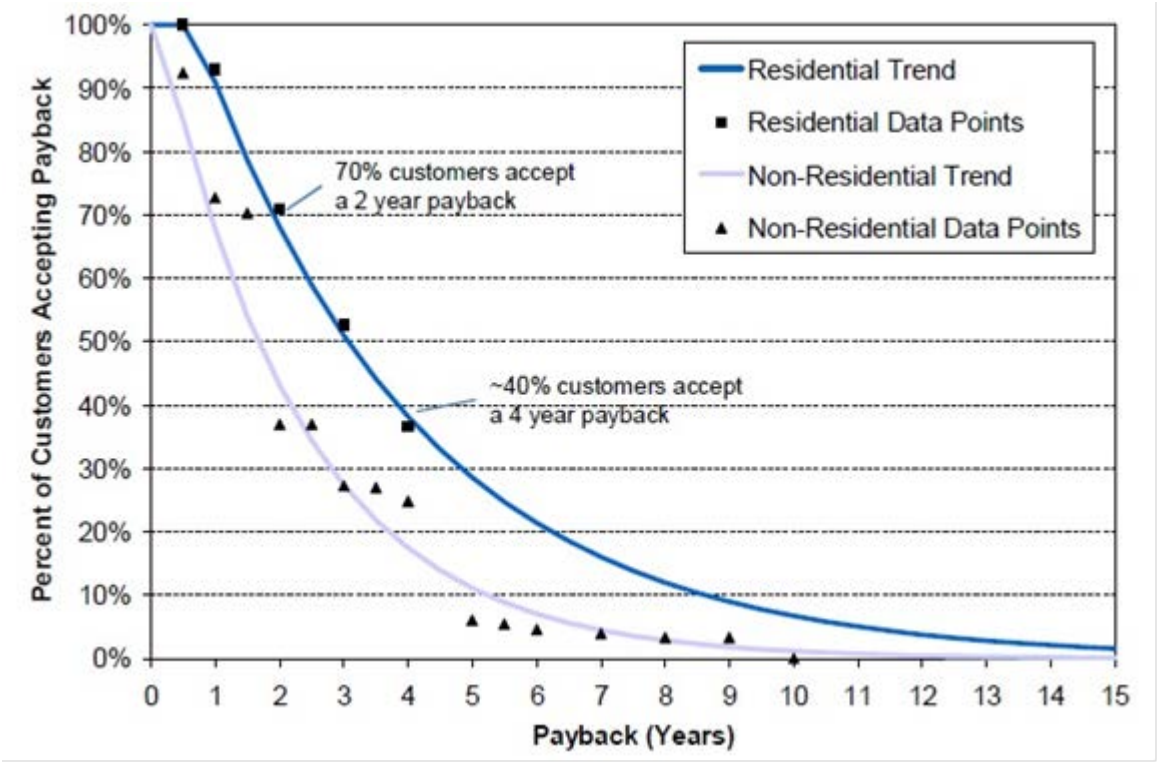
customized energy information along with education on low-cost measures and practices that customers can adopt.

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.

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

FPSC DOCKET NO. 130200-EI

REBUTTAL TESTIMONY OF BENJAMIN M. H. BORSCH

I. INTRODUCTION AND QUALIFICATIONS.

Q. Please state your name, employer, and business address.

A. My name is Benjamin M. H. Borsch and I am employed by Duke Energy Corporation. My business address is 299 1st Avenue North, St. Petersburg, Florida.

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

A. I am the Director, IRP & Analytics – Florida. In this role, I am responsible for resource planning for Duke Energy Florida, Inc. ("DEF" or the "Company"). I am responsible for directing the resource planning process in an integrated approach to finding the most cost-effective alternatives to meet the Company's obligation to serve its customers in Florida. As a result, we examine both supply-side and demand-side resources available and potentially available to the Company over its planning horizon, relative to the Company's load forecasts, and prepare and present the annual Duke Energy Florida Ten-Year Site Plan ("TYSP") documents that are filed with the Florida Public Service Commission ("FPSC" or the "Commission"), in accordance with the applicable statutory and regulatory requirements. In my capacity as the Director, IRP & Analytics –Florida, I oversaw the completion of the Company's most recent TYSP document filed in April 2014 and the Company's 2013 TYSP. I was

also responsible for development of the base resource plan used in the Company's analysis of cost-effective DSM goals in support of the goals proceeding.

Q. Please summarize your educational background and employment experience.

A. I received a Bachelor's of Science and Engineering degree in Chemical Engineering from Princeton University in 1984. I joined Progress Energy in 2008 supporting the project management and construction department in the development of power plant projects. In 2009, I became Manager of Generation Resource Planning for Progress Energy Florida, Inc. and, following the 2012 merger with Duke Energy, I accepted my current position with the Company. Prior to joining Progress Energy, I was employed for more than five years by Calpine Corporation where I was Manager (later Director) of Environmental Health and Safety for Calpine's Southeastern Region. In this capacity, I supported development and operations and oversaw permitting and compliance for several gas-fired power plant projects in nine states. I was also employed for more than eight years as an environmental consultant with projects including development, permitting, and compliance of power plants and transmission facilities. I am a professional engineer licensed in Florida and North Carolina.

II. SUMMARY OF TESTIMONY.

Q. Please summarize of your rebuttal testimony.

A. The purpose of my rebuttal testimony is to address the Direct Testimony of SACE witness Natalie Mims, Sierra Club witness Tom Woolf, and Environmental Defense Fund witness James Fine. The focus of my rebuttal testimony is the resource

planning process utilized by DEF for purposes of evaluating the cost-effectiveness of proposed DSM measures, as well as the assumed carbon cost forecast used in those evaluations. Specifically, I refute three points made by the intervener witnesses with respect to DEF's Integrated Resource Planning ("IRP") process: (1) DEF manipulates or skews the analysis to yield a given result; (2) the IRP process is flawed in general and does not comport with industry standard; and (3) DEF has used unrealistic carbon assumptions in the model.

With respect to the first point, the DEF planning process provides an optimal portfolio of supply side resources against which DSM measures are tested for cost effectiveness. DEF allows DSM measures to be tested for cost effectiveness against all potential units other than those near term units committed to an imminent need. Interveners' second assertion is incorrect. DEF utilizes industry standard modeling techniques that have been reviewed and approved by the Commission and have been refined and updated over a period of more than 20 years. Finally, DEF has properly included an appropriate level of carbon cost, particularly when considering the uncertain future of environmental regulations. DEF has provided a price proxy for the potential costs of carbon regulation that might be borne by DEF customers through rates as an appropriate cost measure against which DSM benefits can be evaluated.

Q. Are you sponsoring any exhibits to your testimony?

A. No.

III. REBUTTAL TESTIMONY.

1. DEF's IRP Process is Principled and not Subject to Manipulation or Skewing

Q. Please explain DEF's Resource Planning process in regard to this docket.

A. DEF uses a process for analyzing and incorporating DSM measures into the resource plan that is performed in three major steps. In the first step, DEF creates a new load forecast with no incremental DSM from the first analysis year and uses the Strategist model to create an optimized resource plan incorporating a portfolio of supply side resources that would be required to serve the full load in the absence of new or continuing DSM measures. With few exceptions, the units making up this portfolio are the avoidable units. In the second step, measures identified through the technical potential process are evaluated against the avoidable units in the portfolio to determine which measures are cost effective. In this step, the benefits of individual DSM measures in terms of avoided capacity and energy are calculated (again by the Strategist model) and compared to the program costs. Measures identified as cost effective, using Commission approved screening criteria, are then aggregated to form the proposed goals. At this point, which is where we stand today, the Company seeks Commission approval of the goals. Following approval, the final step of the process is to re-optimize the resource plan incorporating the anticipated changes to the load and energy forecast resulting from implementation of the approved measures.

Q. Did you perform such a planning analysis for this proceeding?

A. Yes, I am responsible for the group that completes the first and third steps in these analyses. The detailed description of this analysis contained on pages 24-29 of DEF's Direct Testimony is accurate and I incorporate it into this testimony.

Q. Do you agree with Ms. Mims' statement that "the Strategist model was so constrained as to apparently give DEF the 'answer' it wants rather than offering anything approaching an objective result"?

A. No. As detailed in DEF's Direct Testimony and in the summary above, DEF followed the Commission-approved process in evaluating energy efficiency measures. During the first phase of the analysis, constructing portfolios of units to be avoided, DEF constrains the model only to identify units which are already committed. To determine whether a unit is committed for these purposes, DEF looks at two main criteria: (1) whether there are project execution and need constraints requiring that a particular need be met with a generating unit; and (2) whether the Company has started to engage in a process to commit itself or counter-parties to a particular generating option.

To explain the first criteria, in some instances the system planning model may generate a unit to meet a specific need, and that unit may be of such size and imminence that it must be fulfilled with an actual steel in the ground generating unit, rather than DSM measures. Prudent resource planning requires consideration of the actual nature of the need in question. No prudent utility can assume that a particular unit could be avoided by DSM measures, without first considering the particular nature of that need and whether there is sufficient time and likelihood that energy efficiency measures could provide all the necessary reductions in demand and energy in the timeframe at issue. This becomes particularly important when considering the lead times associated with specific near term needs and generating units. DEF does not have the luxury of waiting to see if

DSM programs produce some expected result. We must ensure that adequate resources are available when our customers need them.

When determining whether a unit is committed or avoided, DEF also considers a second factor, whether DEF has committed itself or counter-parties to a particular generating unit option. Through its load forecasting process and the ongoing evaluation of current fleet conditions and availability, DEF regularly evaluates the amount of future need, including the achievement of approved DSM measures, and through its planning model identifies the most cost-effective manner in which to meet that need. Once DEF has identified a particular need and selected either a self-build option to meet that need or has issued a request for proposals ("RFP") to invite counter-parties to bid an alternative resource to meet DEF's need, it no longer considers that unit or Power purchase avoidable. To reliably meet the need, there comes a point in time when DEF needs project certainty to ensure there is time to either self-build or negotiate an appropriate arrangement with a counter-party. This is analogous to the process set forth in Rule 25-17.250, F.A.C. to determine when the avoided unit upon which a standard offer contract is based should no longer be used as the avoided unit.

Q. Please explain why the chillers, the two CT's, and the 2018 Citrus CC units noted in Ms. Mims' testimony could not be avoided by DSM measures and therefore are not appropriate to be used as the avoided unit for DSM evaluation purposes.

A. Each of the units Ms. Mims references is properly considered committed for the reasons explained above. I will first explain why the chillers and the two 2016 CTs meet the

criteria outlined above. I consider these two resources to have the same rationale because they were evaluated together to meet a need that starts in the summer of 2016. Starting with the first criteria, DEF identified a need of 280 MW that begins in the summer of 2016 and grows to over 470 MW in the summer of 2017. Given the size of the capacity need, DEF determined that no DSM programs could be developed, approved, and implemented in time to avoid the need for the 2016 CTs. In addition, bringing the 2016 CTs online will allow older units on DEF's system to retire without additional impact on the transmission system. Similarly, the chillers will bring approximately 200MW of capacity to DEF's system in the summer of 2017. DEF does not believe that any DSM measures could be implemented in time to meet that additional need.

The chillers and the CTs are also committed under the second criteria. DEF began evaluating how to fill the need for 2016 beginning in the fall of 2013. At that time DEF asked counter-parties to refresh previous bids and provide indicative bids to meet the 2016 need. DEF also began work on its self-build alternative (i.e. the CTs and the chillers) so that it could select the most cost-effective option to meet the need. As explained above, because DEF had begun the process of committing to a generating option, it was not reasonable to stop that process to determine whether DSM programs could avoid the particular unit.

With respect to the 2018 Citrus CC, DEF also considered this unit to be committed under the same two criteria. First, there are several operational constraints as to why the unit must be considered committed. The Citrus CC is a 1,640MW combined cycle unit that will be placed into service near DEF's existing Crystal River Units 1 and 2 ("CR1" and "CR2"). The Citrus CC will be brought into service at the same time CR1

and CR2 will be retired to comply with environmental regulations. DEF, and the Florida Reliability Coordinating Council, determined that if there was not continuous operation of generation near CR1 and CR2, there would be significant transmission grid reliability issues. By bringing the Citrus CC unit online concurrent with the retirement of CR1 and CR2, DEF will avoid expensive and substantial transmission projects, and maintain grid reliability. The need for these transmission projects would result in a substantial additional cost to any alternative project, either demand side or supply side to the Citrus CC. In addition, DSM programs of such a scale necessary to defer this large block of capacity (1,640MW) could not be developed, approved, and implemented in time to avoid the need for the 2018 CC.

The Citrus County CC is also committed under the second criteria, because DEF issued an RFP on October 8, 2013, soliciting proposals for other generation capacity resources that might prove superior as a supply-side alternative to the Citrus County CC. At that time, DEF had begun the formal process of soliciting and considering options to meet the 2018 need. As explained above, it does not make sense to stop and start such a process once it has begun. Accordingly, DEF considered it to be committed for purposes of evaluating the avoided unit for use in evaluating DSM options.

Q. Did DEF "hardwire" resources into the Strategist model such that DEF's analysis was biased against DSM?

A. No. With the exception of properly excluding the committed resources discussed above, DEF did not "hardwire" any of the Strategist selections. This question demonstrates a misunderstanding of the evaluation process. Ms. Mims' assertion that DEF "hardwired"

or otherwise tinkered with the Strategist model to bias the results against DSM is an unsupported claim. DEF employed an analysis that is based on a familiar, Commission-approved resource planning methodology to consider all resources, including cost-effective DSM resources. In the first stage of the process in which Strategist identifies resources, this optimization is being performed against a load forecast which incorporates no incremental DSM. This part of the process develops the resource plan against which the DSM measures are evaluated. The resource plan selected for use in the cost benefit evaluation of DSM measures is the lowest cost plan on a Cumulative Present Value Revenue Requirements ("CPVRR") basis utilizing reasonably available supply side resources. As such, it is not biased with regard to DSM, but produces a low cost supply side portfolio of resources against which the DSM measures compete. DEF's forecasted need, driven by upcoming unit retirements and load growth, drives the selection of resources in that period.

Q. What is your response to Mr. Woolf's assertion that DEF's resource planning process does not allow DSM measures the full opportunity to defer new supply-side resources?

A. I believe Mr. Woolf is combining elements of the DEF and FPL methods in a way that confuses each individual process. As described above, DEF produces a supply side only plan and then screens DSM measures for their cost effectiveness against that plan. Assuming approval of the cost effective measures by the Commission, DEF incorporates those measures into the plan and then adjusts the supply side resources around the new load and energy projections including those approved measures. There is no "second

screen" in which DEF reduces or eliminates measures based on expectations of supply side units.

Q. Please respond to Ms. Mims' assertion that the avoided unit CT (2018) is lower in cost than the 2016 CT.

A. Ms. Mims raises this point because she is suggesting that we are improperly assuming a lower price for the 2018 avoided unit to jeopardize the cost-effectiveness of the DSM measures. First, it appears that she is comparing the capital costs of the two units without comparing the total cost of each project. Because the 2018 CT is a generic CT, it has associated fixed gas transportation charges assumed which will result in a higher production cost than the 2016 CTs which have been planned to utilize the existing transportation portfolio. The reason that the 2018 CT has a lower capital cost in the model than the 2016 CT is due to the way that DEF plans CTs. DEF endeavors in its planning to make a realistic representation of the way in which actual units would be planned and sited. Typically DEF does not site single CTs on separate greenfield sites. As such, DEF models CTs in sequences of 2 – 4 CTs. When a CT is needed, the model can determine if the next CT should be a "greenfield" or "brownfield" unit. Greenfield units have a higher cost because the cost includes costs for initial site development. Brownfield units have lower costs. In this case, the 2018 unit is a brownfield unit following the development of the 2016 units.

2. DEF's IRP Process is not Flawed and Comports with Industry Standards

Q. Do you agree with Mr. Woolf's claim that DEF's "resource planning process is inconsistent with standard industry practice for integrated resource planning"?

A. No. DEF's Resource Planning process is an integrated process in which the Company seeks to optimize its supply-side options along with its demand-side options into a final, integrated plan, designed to deliver reliable, cost-effective power to DEF's customers. We evaluate the relationship of demand and supply against the Company's reliability criteria to determine if additional capacity is needed during the planning period. We utilize a computer model called Strategist to evaluate future generating unit options. Strategist is an electric utility industry standard resource optimization program. Strategist models DEF's system and determines combinations of future resource additions that meet system reliability criteria while satisfying system constraints at the most cost-effective total production cost for DEF's system, measured by CPVRR.

The most cost-effective supply-side resource or combinations of resources are evaluated and the various generation plans are ranked by system revenue requirements, or the CPVRR results. Strategist considers many tens or hundreds of thousands of resource combinations. Each of these resource combinations is ranked based on cost performance over the selected planning period and the study period which includes end effects. After using Strategist to identify the lowest cost plan candidates, DEF uses the Planning and Risk module of the Energy Portfolio Manager ("EPM") software to further evaluate the production cost results. EPM is a detailed production cost model which models system behavior at an hourly level and allows for the input of a greater detail of operating constraints. DEF combines the production cost results of EPM with the fixed cost outputs from Strategist to create its final rankings. While other utilities use a range of other modeling tools, the general steps in evaluating cost effective resource plans

including option identification and screening, capacity resource optimization and detailed production cost modeling are common to resource planning processes across many utilities. I would note that Mr. Woolf's only support for his assertion that DEF's process is not industry standard is that DEF does not use the minimization of CPVRR to select resource plans. This statement is incorrect. Minimization of CPVRR is one of the key objectives in the DEF process and is an explicit result in all of DEF's planning results.

Q. How do you respond to Mr. Woolf's statement that DEF's resource screening practices are "opaque, convoluted, and misguided"?

A. DEF has consistently explained our resource planning practices before the Commission in a wide variety of dockets, and we have consistently and clearly explained the processes and procedures. Specifically, DEF and its predecessor companies have used the same resource planning processes including the use of Strategist and its predecessor models since the mid-1990's. Accordingly, those processes have been used in several proceedings during that time period, including the annual TYSP filing, need determination proceedings, nuclear feasibility dockets, and avoided cost proceedings. The Commission, and intervener parties, have asked multiple interrogatories, requests for production, and data requests related to our resource planning model in these various proceedings. Indeed, in this DSM proceeding, I have assisted with answering multiple discovery questions from the interveners with respect to our planning model. To cite just one example, I provided multiple input and output files related to the relevant Strategist and EPM runs for this docket. The process is clear, logical, and consistent with how planning decisions have been made in Florida for more than 20 years.

Q. Do you agree with Mr. Woolf's recommendation that the utilities should "analyze numerous plans to optimize the combination of demand-side and supply-side resources"?

A. As discussed earlier in this testimony, DEF does analyze numerous plans to establish an optimal mix of supply side resources given a set of assumptions regarding available DSM resources. DEF analyzes hundreds of demand side measures to identify the portfolio of cost effective measures which minimizes the total cost from that optimal plan. Following the establishment of the cost effective DSM programs DEF will further optimize the supply side plan to reflect the projected changes resulting from the implementation of demand side resources. Since each step optimizes to identify the lowest cost supply side portfolio that meets DEF's reliability criteria, further iterations "mixing and matching" DSM measures with supply side resources would not yield any lower cost solutions.

Q. Does DEF use rate impacts as the primary criterion for resource planning and choosing among resource options?

A. No. DEF's primary criterion for choosing among resource options is CPVRR, i.e. total system cost. CPVRR is a metric designed to measure the total forward looking cost of a system portfolio.

Q. Do you agree with Mr. Woolf that DEF's resource planning results suffer from so many fundamental flaws that they cannot be used for setting DSM goals?

A. No. As explained above, DEF's resource planning process is consistent with Commission approved practices and provides an objective measure of costs and benefits of specific alternatives for both DSM and supply side resources.

Q. What is your response to Ms. Mims' conclusion that DEF uses a flawed resource planning process that does not appropriately estimate its avoided costs?

A. Ms. Mims' comments focus primarily on the assertion that DEF over constrains the model to produce specific results, "hardwiring" the model as she refers to it. As explained previously in the testimony, DEF does not engage in any improper "hardwiring" of its planning model.

Q. Do you agree with the interveners that Florida lacks comprehensive energy planning?

A. No, I do not. First, these arguments about the Florida planning process appear to be beyond the scope of this proceeding because, as I explain below, the planning process is mandated by statute. However I will explain further why I disagree with these arguments. Ms. Mims acknowledges that Florida's planning process consists of three components: the Ten Year Site Plan ("TYSP"), the FEECA proceeding (i.e. this docket), and need determination proceedings for proposed power plants. These three components make up a comprehensive planning process, one that considers all relevant factors to planning and appropriately balances all interests (e.g. reliability, cost-effectiveness, environmental, etc.). These processes are set out by statutes, and by implementing these statutes, the

FPSC has engaged all stakeholders in thoughtful and meaningful planning with all stakeholders.

Ms. Mims is incorrect regarding the robustness and transparency of the TYSP review process. Each year the Commission expounds multiple data requests upon DEF and other utilities to test the information contained in each utility's TYSP. The Commission also accepts comments from interested parties, a process that SACE and the Sierra Club have both utilized in recent years. The Commission also has a public hearing to discuss the TYSP filings, at which time the Florida Reliability Coordinating Council ("FRCC") presents the planning forecasts for all Florida utilities. Comments from the public are welcome, and again SACE and the Sierra Club have provided comments in previous TYSP proceedings.

Florida's planning process, while it may be completed in separate pieces and stages, does have all the relevant components of an effective planning process. Contrary to Ms. Mims' argument, this Commission has been appropriately implementing a rigorous planning process, and by doing so it has ensured that DEF and all the electric utilities are pursuing least cost and least risk alternatives while maintaining system reliability.

Q. Ms. Mims argues that the reserve margin should be lower than the 20 percent that DEF currently utilizes. Do you agree with her argument?

A. No. First I would point out that this issue is well beyond the scope of this proceeding. Notwithstanding the relevance to this docket, DEF has been planning its resources to satisfy a minimum Reserve Margin criterion and a maximum Loss of Load Probability ("LOLP") criterion since the 1990s. This planning criterion has been reviewed, accepted,

and approved by the Commission each year in the TYSP process, as well as in various need proceedings for new generating plants (filed both by DEF's predecessor and other Florida utilities). The stipulation which established the 20% minimum reserve margin for the Investor Owned Utilities was based on consideration of many basic conditions of the Florida geography and electric system. At a high level, these include an acknowledgement that Florida, as a peninsula, has limited import capability from other states, and thus must have sufficient reliability to stand alone, that the existing Florida transmission system has significant constraints to transfer among the utilities, and that the Florida generation system includes numerous small entities which choose not to fully supply reserves and rely, in part, on the ability of the investor owned utilities to supply reserve generation during periods of system upset.

3. DEF Utilized Appropriate Carbon Cost Assumptions

Q. Did DEF consider the future potential cost of carbon regulation in its analysis of the cost-effectiveness of DSM measures and programs?

A. Yes, as explained in the Direct Testimony filed April 2, 2014 (see pages 39-41), DEF performed a sensitivity including the impact of a monetized cost for Greenhouse Gas emissions compliance. This sensitivity did not show a significant increase in the number of programs that the utility could offer meeting the cost effectiveness test. In the Order Establishing Procedure, the FPSC required that utilities analyze cost effectiveness in the absence of a price for GHG emissions as the base case. DEF's sensitivity showed that including the projected GHG did not materially impact the results. Given this result, and the lack of immediacy of a carbon market within this goal setting period combined with

the lack of certainty that the EPA regulations currently under development will translate into an external cost for CO2 emissions like the one we model here, DEF did not propose goals assuming a cost for carbon. At this time, the specifics of EPA's rule making is currently uncertain and the timeline for implementation is likely to extend over the duration of this goal setting.

Q. How do you respond to Mr. Woolf's arguments with respect to the cost of greenhouse gas regulations?

A. I would first note that, while he generally expounds on the need to include the cost of such regulations, he does not provide a specific compliance cost that DEF should have used. He also does not provide any information as to the impact of using this un-identified cost on the results in this proceeding (he does refer to the 2009 proceeding and the impact of including compliance costs on another utility's goals in that proceeding. Of course such a comparison is irrelevant to the facts and circumstances that face DEF in this proceeding.) In any event, I disagree with his assertion that DEF has not appropriately analyzed the compliance costs for environmental regulations. Indeed, we have done exactly what he claims we should have done: "apply the best estimate available of the likely costs of complying with state and federal requirements for controlling greenhouse gas pollution during the entire DSM cost-effectiveness study period."

Specifically, to determine the compliance cost for purposes of the sensitivity analysis, DEF reviewed the state of the environmental regulations. With respect to CO_2 prices, DEF did not consider a price for CO_2 in its base case given the lack of activity to enact federal climate change legislation that sets a price on CO_2 emissions, and the uncertain

prospects for such action in the future. At the time of this analysis, EPA action was pending and equally uncertain. For its sensitivity case, DEF used a CO_2 price trajectory that starts at $17.47 per ton (nominal dollars) in 2020, increasing at a rate of 8.3% per year. Given the lack of any specific policy proposals that would set a price on CO_2 emissions, these prices by necessity reflect considerable judgment on our part. DEF considers these CO_2 prices to be a reasonable trajectory given the uncertainty surrounding this issue.

The outcome of the legislative debate that occurred in 2009 and early 2010 is informative to the prices we are using today. As evidenced by the 2009 debate over the Waxman-Markey legislation, there are many strongly held differences of opinion within the Democratic and Republican caucuses and between members of Congress representing different regions of the country regarding climate change legislation. It is not simply a Democrat versus Republican issue. For example, members of both parties from states with farm- and industrial-based economies expressed concerns about the impact of climate change legislation on manufacturing and energy prices; coal state members expressed concerns that climate change legislation would hurt the mining economy; and members from states that have historically relied on coal-fired generation expressed significant concerns over increased electric costs to consumers.

DEF believes a primary reason for the failure of climate change legislation in 2009 was concern that the legislation would lead to higher energy prices that would have had an adverse impact on the economy. It is reasonable to assume that this same concern will be present during any future debate over federal climate change legislation or proposed regulation. In addition, regional differences, more than those between the political

parties, could have a great bearing on the outcome of any future debate in Congress over climate change policy.

USEPA issued proposed guidelines in June 2014 that will start a multi-year process to regulate CO_2 emissions from existing fossil-fueled power plants. The outcome of EPA's upcoming CO_2 regulation for existing EGUs is highly uncertain, both in terms of its fate in the courts and in the fashion of its implementation by EPA and the states and DEF cannot predict the outcome. As our projection was necessarily determined in the fall of 2013, DEF did not factor this upcoming rulemaking in its consideration of the CO_2 prices to use in this docket.

The Florida Public Service Commission staff directed utilities that were going to use a CO_2 price in this docket to agree on a single price trajectory. Only DEF and Florida Power and Light are using a CO_2 price. Based on the Staff's direction in this regard, DEF and Florida Power and Light decided to derive a single price trajectory by averaging each company's annual CO_2 prices.

Q. What do you say to Dr. Fine's argument that the utilities should use the carbon compliance cost presented in the "Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis"?

A. I disagree with Dr. Fine. The referenced document ("Technical Update") does not imply or state what the cost of compliance for a particular company is now or will be in the future. Rather, it attempts to estimate the full societal or social cost of carbon emissions given a particular set of assumptions. In fact, it states that the "purpose of the 'social cost of carbon' (SCC) estimates presented here is to allow agencies to incorporate the social

benefits of reducing carbon dioxide (CO_2) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions." (See p. 2 of Technical Update). In other words, the Technical Update includes the cost of global environmental externalities, such as "changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of the ecosystem services due to climate change." (See p. 2 of Technical Update). It is inappropriate in this proceeding to use these global social cost estimates for purposes of evaluating the cost-effectiveness of DEF's DSM programs. The only relevant carbon cost assumption for use in this proceeding is an estimate of DEF's implemented cost of compliance for any future set of reasonable environmental regulations. DEF's assumptions regarding its expected future cost of compliance are explained above. Because there is no reasonable expectation that any future regulation would require DEF to pay the costs of global climate change, like costs incurred due to sea changes or temperature changes in Eastern Europe, the social costs included in the Technical Update are not reasonable carbon compliance costs for this proceeding.

Q. Does this conclude your testimony?

A. Yes, it does.