DUKE ENERGY®
FLORIDA

Dianne M. Triplett
ASSOCIATE GENERAL COUNSEL
Duke Energy Florida, Inc.

April 2, 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 Petition for Approval of Numeric Conservation Goals submitted on behalf of Duke Energy Florida, Inc., along with the Direct Testimony and Exhibits HG-1 through HG-17of Mrs. Helena (Lee) Guthrie.

This filing is in compliance with the Order Establishing Procedure dated August 19, 2013 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
Enclosures

299 First Avenue North (33701) Post Office Box 14042 (33733) St. Petersburg, Florida
Phone: 727.820.4692 Fax: 727.820.5041 Email: Dianne.triplett@duke-energy.com

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Commission review of numeric Conservation goals (Duke Energy Florida, Inc.)
______________________________/

Docket No. 130200-EI
Filed: April 2, 2014

DUKE ENERGY FLORIDA, INC.'S
PETITION FOR APPROVAL OF CONSERVATION GOALS

Pursuant to Sections 366.81 and 366.82, Florida Statutes and Rule 25-17.0021, Florida Administrative Code ("F.A.C."), Duke Energy Florida, Inc. ("DEF") petitions the Florida Public Service Commission ("Commission") for approval of DEF's proposed conservation goals for the period 2015-2024. In support of this petition, DEF states:

1. The name and address of the affected agency are:

Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

2. The name and address of the petitioner are:

Duke Energy Florida, Inc.
299 First Avenue North
St. Petersburg, Florida 33701

3. Notices, orders, pleadings and correspondence to be served upon DEF in this proceeding should be directed to:

Dianne M. Triplett
Associate General Counsel
Duke Energy Florida, Inc.
P.O. Box 14042
St. Petersburg, FL 33733
(727) 820-5184 telephone
Dianne.triplett@duke-energy.com

Paul Lewis, Jr.
Director, Regulatory Affairs
Duke Energy Florida, Inc.
106 East College Avenue, Suite 800
Tallahassee, FL 32301
(850) 222-8738 telephone
paul.lewisjr@duke-energy.com

Matthew R. Bernier
Senior Counsel
Duke Energy Florida, Inc.
106 East College Avenue, Suite 800

Tallahassee, FL 32301
(850) 521-1428
Matthew.bernier@duke-energy.com

4. Pursuant to Section 366.81, Florida Statutes, the Commission requires each utility to develop plans and implement programs for increasing energy efficiency and conservation and demand-side renewable energy systems within its service area, subject to the approval of the Commission. DEF is a public utility within the meaning of Section 366.02(1), Florida Statutes, and is subject to the Commission's jurisdiction under Chapter 366, Florida Statutes. The Commission has stated that it will establish conservation goals for DEF in this proceeding. The establishment of DEF's conservation goals will affect the need for and selection of resource alternatives by DEF, and the goals will be the target for DEF to meet in its attached filing of a demand side management plan; therefore, DEF's substantial interests will be determined in this proceeding.

5. This docket and separate dockets for each of the other six FEECA utilities in Florida were established for the purpose of developing and prescribing numeric conservation or DSM goals for each of the seven Florida FEECA utilities to be applicable during the period 2015-2024. The seven separate dockets were consolidated in Order No. PSC-13-0386-PCO-EU for the purpose of conducting Staff workshops and for hearing.

6. DEF is not aware of any disputed issues of material fact. DEF's programs, assumptions, and evaluation methodology in the proposed conservation goals are reasonable and are developed based upon the criteria set forth in Rule 25-17.0021, F.A.C. The Commission should approve the DSM goals proposed by DEF for the 2015 through 2024 time period.

7. DEF is simultaneously filing the prepared direct testimony and exhibits of Helena "Lee" Guthrie. Ms. Guthrie's testimony, along with the exhibits contained therein, set forth proposed conservation goals for the ten-year period 2015-2024 and summarize DEF's ten-year projections based upon DEF's most recent planning process of the total, cost-effective, winter and summer peak demand (MW) and annual energy (GWH) savings reasonable achievable in the residential and commercial/industrial classes through demand side management. DEF's goals are delineated in Ms. Guthrie's direct testimony.

Projections of summer and winter demand savings and annual energy savings are identified in Ms. Guthrie's testimony and presented in Exhibit No. HG-1, also appended to Ms. Guthrie's testimony filed together with this Petition. DEF's projections reflect consideration of overlapping measures, rebound effects, free riders, interactions with building codes and appliance efficiency standards, and DEF's latest monitoring and evaluation of conservation programs and measures. The Commission should approve Duke Energy's overall Residential MW and GWH goals and overall Commercial/Industrial MW and GWH goals set forth in this filing. These goals reflect the reasonably achievable demand side management potential in DEF's service territory over the ten year period 2015-2024 developed in DEF's planning process.

8. In the last DSM goal-setting proceeding, the FEECA utilities formed a collaborative and worked with an independent company, Itron, Inc., to develop a comprehensive evaluation to assess the technical potential for reducing electricity use and peak demand by implementing a wide range of end-use energy efficiency and demand response measures, as well as customer-scale solar photovoltaic and solar thermal

installations in the service territories of the seven collaborative utilities. Itron's Technical Potential Study served as the foundation for estimating economic and achievable potential for each collaborative utility. The 2009 Technical Potential Study developed by Itron identified the theoretical limit of electric peak demand and energy reductions in Florida.

In this goal-setting proceeding, Commission Staff, the FEECA utilities and other interested parties agreed to update the 2009 Technical Potential Study rather than commission a net-new study. For that reason, DEF conducted a series of steps to update the 2009 Technical Potential Study that resulted in a 2014 Technical Potential Study.

9. DEF is entitled to relief pursuant to Sections 366.81 and 366.82, Florida Statutes and Rule 25-17.0021, F.A.C. DEF's proposed goals reflect the reasonably achievable demand side management potential in DEF's service territory over the ten year period 2015-2024 developed in DEF's planning process. The Commission should approve the goals set forth in DEF's RIM scenario as set forth in this filing.

WHEREFORE, DEF respectfully requests that the Commission enter an order approving and establishing DEF's proposed numeric conservation goals pursuant to Rule 25-17.0021, F.A.C., as set forth in this filing.

Respectfully submitted,

Dianne M. Triplett
Associate General Counsel
Matthew R. Bernier
Senior Counsel
DUKE ENERGY FLORIDA, INC.
299 First Avenue North

DUKE ENERGY FLORIDA, INC.
299 First Avenue North
Post Office Box 14042
St. Petersburg, Florida
Phone: 727.820.4692
Fax: 727.820.5041
Email: dianne.triplett@duke-energy.com
matthew.bernier@duke-energy.com

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished to the following by U.S. Mail this 2nd day of April, 2014 to all parties of record as indicated below.

DIANNE M. TRIPLETT

Lee Eng Tan Office of General Counsel Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, FL 32399-0850 ltan@psc.state.fl.us cmurphy@psc.state.fl.us Steven L. Hall, Senior Attorney Office of General Counsel 407 South Calhoun Street, Suite 520 Tallahassee, FL 32399 steven.hall@FreshFromFlorida.com	J. Beasley/J. Wahlen/A. Daniels Ausley McMullen Post Office Box 391 Tallahassee, FL 32302 jbeasley@ausley.com jwahlen@ausley.com adaniels@ausley.com Diana Csank Sierra Club 50 F St. NW, 8th Floor Washington, DC 20001 diana.csank@sierraclub.org

John Butler/Jessica Cano 700 Universe Blvd Juno Beach, FL 33408 john.butler@FPL.com jessica.cano@FPL.com Kevin Donaldson 4200 West Flagler Street Miami, FL 33134 kevin.donaldson@fpl.com	Jon C. Moyle, Jr. / Karen Putnal Moyle Law Firm, P.A. 118 N. Gadsden Street Tallahassee, FL 32301 jmoyle@moylelaw.com kputnal@moylelaw.com Robert L. McGee, Jr. Gulf Power Company One Energy Place Pensacola, FL 32520 rlmcgee@southernco.com
Paula K. Brown P.O. Box 111 Tampa, FL 33602 pkbrown@tecoenergy.com Jeffrey A. Stone/ Russell A. Badders Steven R. Griffin Begs & Lane Gulf Power P.O. Box 12950 Pensacola, FL 32591 srg@beggslane.com	George Cavros Southern Alliance for Clean Energy 120 E. Oakland Park Blvd., Suite 105 Ft. Lauderdale, FL 33334 george@cavros-law.com Alisa Coe/Joshua D. Smith Earthjustice 111 S. Martin Luther King Jr. Blvd. Tallahassee, FL 32301 acoe@earthjustice.org James W. Brew / F. Alvin Taylor c/o Brickfield Law Firm 1025 Thomas Jefferson St., NW, Eighth Washington, DC 20007 jbrew@bbrslaw.com

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 5,000 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.

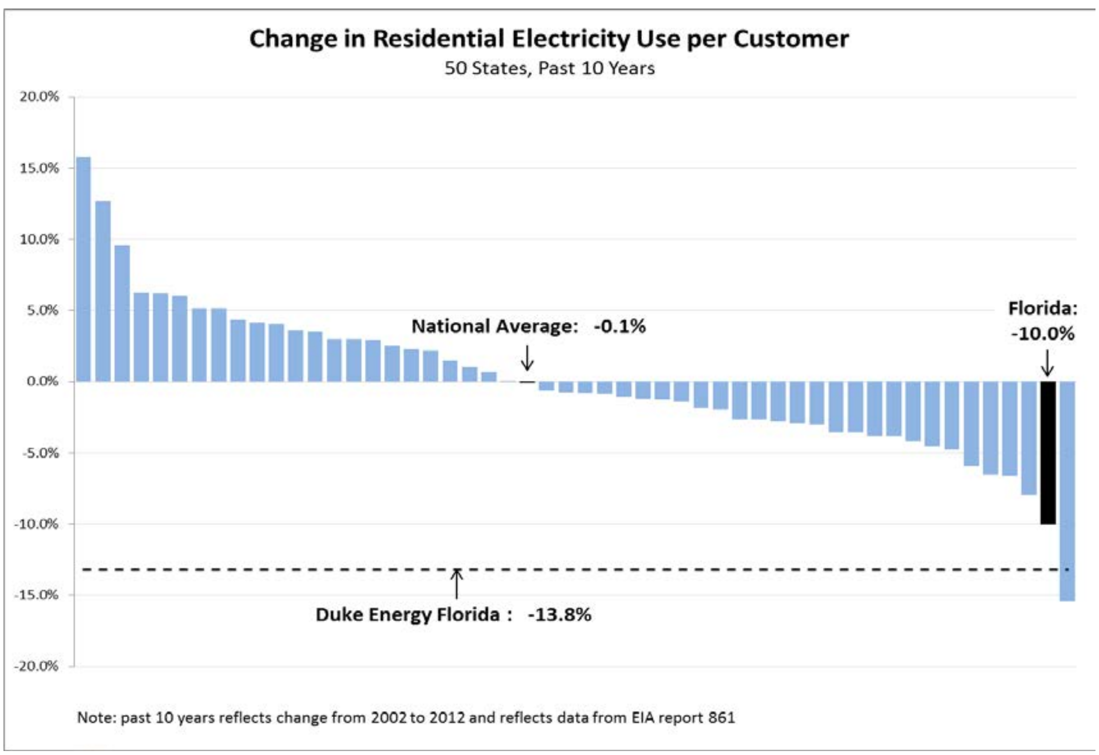
Q. How do Duke Energy Florida's DSM accomplishments compare to other utilities in the nation?

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 13.8%.

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:

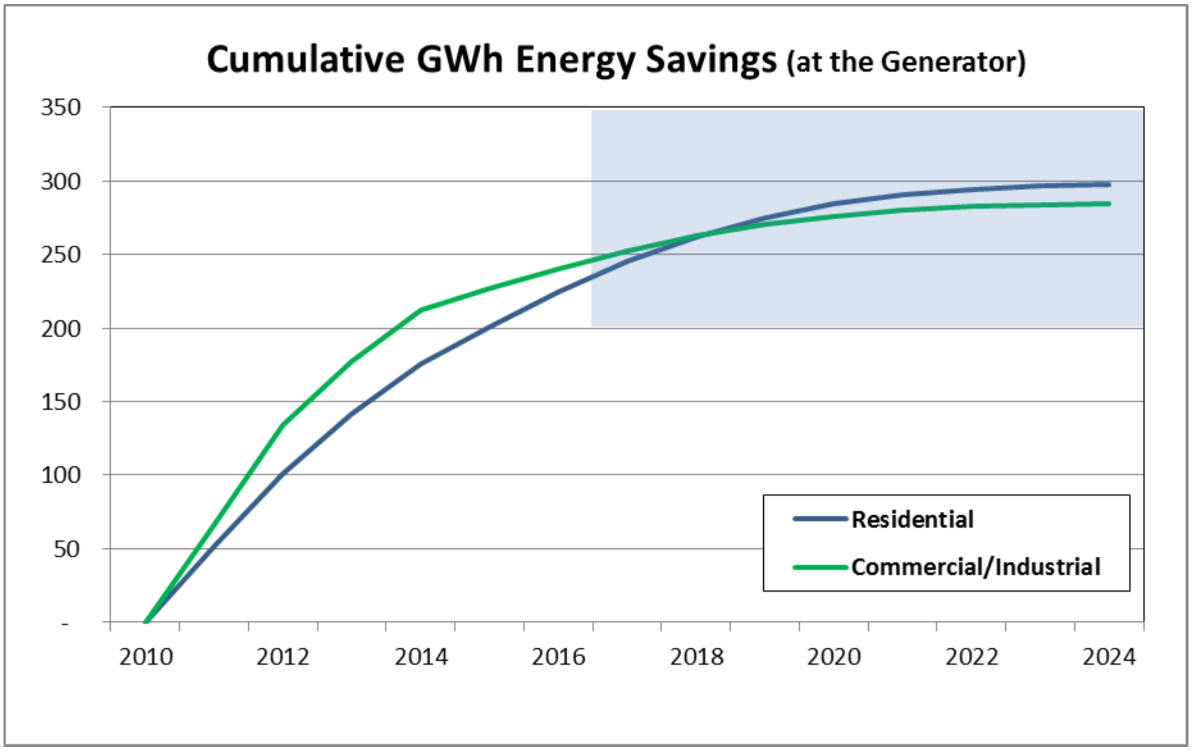
<u>Residential Market Segment</u>

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

<u>Commercial/Industrial Market Segment</u>

- 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 285 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.

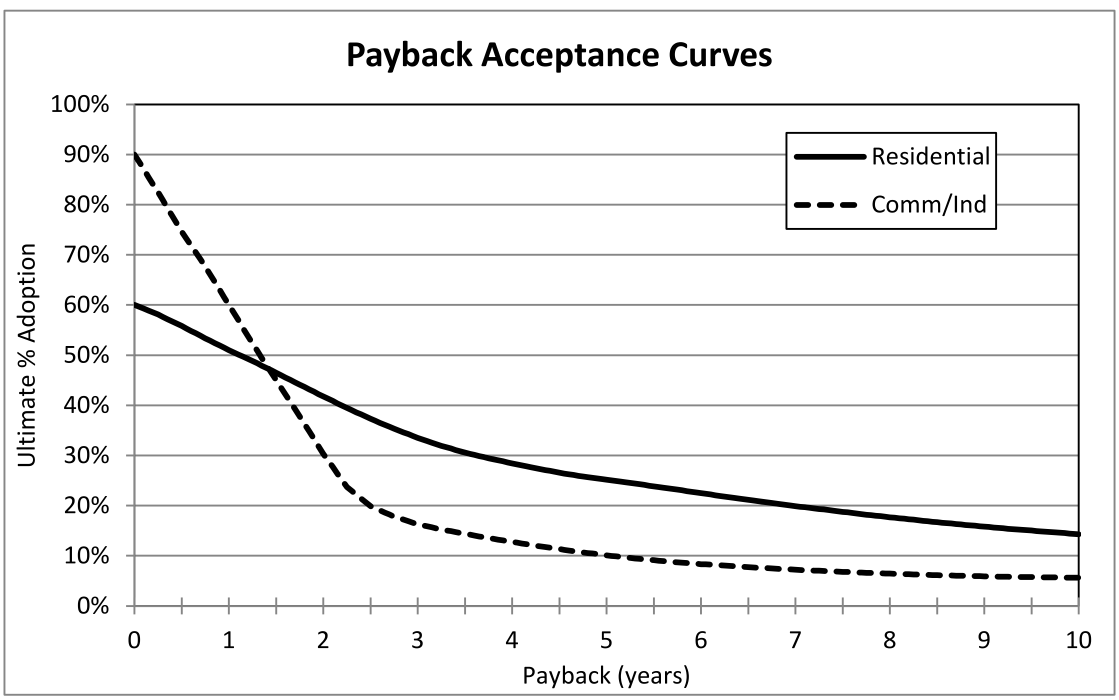
Please refer to Exhibit No. __ (HG 13) for the achievable potential and associated measure names for DEF based on the TRC and Participant cost-effectiveness tests.

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	0.558	0.530	0.733
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.

Exhibit No. (HG-1) Duke Energy Florida's Proposed Goals
Ten-Year Projections of DSM Savings

DUKE ENERGY FLORIDA

2015 - 2024 Proposed Residential DSM Goals At Generator

	Summer Demand (MW)		Winter Demand (MW)		Annual Energy (GWH)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2015	26.43	26.43	58.38	58.38	25.45	25.45
2016	23.97	50.39	53.09	111.47	23.78	49.22
2017	22.21	72.61	48.74	160.20	20.77	69.99
2018	20.02	92.62	43.23	203.44	16.98	86.97
2019	17.71	110.34	37.46	240.89	13.01	99.98
2020	15.53	125.86	32.15	273.05	9.29	109.27
2021	13.65	139.51	27.79	300.84	6.16	115.43
2022	12.23	151.74	24.53	325.36	3.79	119.23
2023	11.27	163.00	22.29	347.66	2.19	121.42
2024	10.66	173.67	20.89	368.55	1.18	122.60

2015 - 2024 Proposed Commercial/Industrial DSM Goals At Generator

	Summer Demand (MW)		Winter Demand (MW)		Annual Energy (GWH)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2015	11.97	11.97	5.42	5.42	14.47	14.47
2016	11.58	23.55	5.36	10.78	13.60	28.07
2017	11.03	34.58	5.56	16.34	11.99	40.06
2018	9.99	44.57	5.14	21.48	10.04	50.09
2019	9.09	53.67	5.01	26.49	7.98	58.07
2020	8.23	61.89	5.18	31.67	5.88	63.95
2021	6.89	68.78	4.78	36.45	3.92	67.87
2022	5.97	74.75	4.71	41.16	2.40	70.27
2023	5.59	80.35	4.95	46.11	1.40	71.67
2024	5.02	85.37	4.62	50.73	0.76	72.43

2015 - 2024 Proposed Total DSM Goals At Generator						
	Summer Demand (MW)		Winter Demand (MW)		Annual Energy (GWH)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2015	38.40	38.40	63.80	63.80	39.92	39.92
2016	35.55	73.94	58.45	122.25	37.38	77.29
2017	33.24	107.19	54.30	176.54	32.75	110.05
2018	30.01	137.20	48.37	224.91	27.02	137.07
2019	26.80	164.00	42.46	267.38	20.99	158.06
2020	23.75	187.75	37.34	304.71	15.17	173.23
2021	20.54	208.29	32.57	337.29	10.08	183.31
2022	18.20	226.49	29.23	366.52	6.19	189.50
2023	16.86	243.35	27.25	393.76	3.59	193.08
2024	15.69	259.04	25.51	419.28	1.95	195.03

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

A forecast of annual residential bills assuming a projected RIM achievable portfolio was computed for a typical residential customer using 1,200 kwh per month. 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 clause, capacity cost recovery (CCR), energy conservation cost recovery (ECCR) clause 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.

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
$1,820	$1,802	$1,911	$1,972	$2,103	$2,129	$2,190	$2,235	$2,252	$2,246

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

A forecast of annual residential bills assuming a projected TRC achievable portfolio was computed for a typical residential customer using 1,200 kwh per month. 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 clause, capacity cost recovery (CCR), energy conservation cost recovery (ECCR) clause and environmental cost recovery (ECRC) clauses. The forecast reflects the level of estimated DSM demand and energy savings in the TRC 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 TRC achievable portfolio, including advertising costs, administrative costs and incentive payments for energy efficiency programs and incentive payments associated with load control programs.

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
$1,829	$1,811	$1,919	$1,980	$2,111	$2,136	$2,195	$2,238	$2,254	$2,247

Exhibit No. ___ (HG-4) Duke Energy Florida's Technical Potential Calculation Methodology

Definitions

- **Technical Potential (TP) –** An analysis performed in the DSM Goals development process to identify the theoretical limit 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. The 2014 TP is the 2009 TP updated to reflect subsequent technology and marketplace changes.
- **Codes & Standards –** Florida Building Codes and Federal equipment manufacturing standards.
- **Baseline Measure –** A measure which represents the minimum demand and energy impacts for a technology (e.g., 14 SEER for air-conditioning as prescribed by 2015 Codes & Standards). The Baseline Measure serves as the basis for calculating the incremental impacts for related Dependent Measures.
- **Dependent Measure –** 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 v. the 14 SEER Baseline Measure).
- **Competing Measure –** A measure which "competes" or displaces another similar measure from being implemented (e.g., high efficiency air-conditioners with SEERs of 15 or 17 could not both be installed to serve the same cooling load).
- **Complementary Measure –** A measure that can add incremental demand and energy impacts independent of other measures (e.g., ceiling insulation). The size of these measures' incremental impacts can be affected by other measures (e.g., impact of ceiling insulation can be affected by the level of air-conditioning efficiency).

Updating the Energy Efficiency measures included all steps noted below. Step 3 was performed for Demand Response and Photovoltaic measures as there were no applicable Codes & Standards changes or new measures.

2009 Technical Potential

↓

1. Adjusted Existing Measures

- Removed Baseline Measures rendered obsolete by Codes & Standards changes
- Established new Baseline Measures, where appropriate, to replace those that became obsolete
- Reduced the demand and energy of all Dependent Measures related to the new Baseline Measure

↓

2. Added New Measures

- Added commercially-viable Competing and Complimentary Measures not included in the 2009 TP
- Calculated the respective demand and energy impacts of those new measures relative to the appropriate Baseline Measure

↓

3. Adjusted for Marketplace Changes

- Incorporated effect of overall service area growth from 2007 through 2012
- Reduced overall demand and energy potential to reflect the impact of the utility's DSM programs from 2007-2012

↓

2014 Technical Potential

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential Amount of DSM

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**

Demand Response						
	System Total		**Residential**		**Commercial/Industrial**	
	Summer MW	Winter MW	Summer MW	Winter MW	Summer MW	Winter MW
ITRON Original Technical Potential	1,006	948	734	856	272	92
Adjusted for Customer Growth	1,017	958	742	865	275	93
Adjusted for DSM Accomplishments	1,004	957	735	868	269	89
2014 Technical Potential	**1,004**	**957**	**735**	**868**	**269**	**89**

Renewable									
	System Total			**Residential**			**Commercial**		
	GWH	Summer MW	Winter MW	GWH	Summer MW	Winter MW	GWH	Summer MW	Winter MW
ITRON Original Technical Potential	13,593	5,000	818	9,215	3,344	609	4,378	1,656	209
Adjusted for Customer Growth	13,743	5,055	827	9,316	3,381	616	4,426	1,674	211
Adjusted for DSM Accomplishments	13,737	5,054	827	9,313	3,380	616	4,423	1,674	211
2014 Technical Potential	**13,737**	**5,054**	**827**	**9,313**	**3,380**	**616**	**4,423**	**1,674**	**211**

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential

	Duke Energy Florida - Residential Measures	
	Measure #	**Measure**
1	102	15 SEER Split-System Air Conditioner
2	103	17 SEER Split-System Air Conditioner
3	104	19 SEER Split-System Air Conditioner
4	105	14 Seer Split-System Heat Pump
5	106	15 SEER Split-System Heat Pump
6	107	17 SEER Split-System Heat Pump
7	111	Sealed Attic w/Sprayed Foam Insulated Roof Deck
8	112	AC Maintenance (Outdoor Coil Cleaning)
9	113	AC Maintenance (Indoor Coil Cleaning)
10	114	Proper Refrigerant Charging and Air Flow
11	115	Electronically Commutated Motors (ECM) on an Air Handler Unit
12	116	Duct Repair
13	118	Radiant Barrier
14	120	Window Tinting
15	121	Default Window With Sunscreen
16	122	Single Pane Clear Windows to Double Pane Low-E Windows
17	124	Ceiling R-0 to R-19 Insulation
18	125	Ceiling R-19 to R-38 Insulation
19	126	Wall 2x4 R-0 to Blow-In R-13 Insulation
20	127	Weather Strip/Caulk w/Blower Door
21	191	HE Room Air Conditioner - EER 11
22	192	HE Room Air Conditioner - EER 12
23	196	Reflective Roof
24	197	Window Film
25	221	CFL (18-Watt integral ballast), 0.5 hr/day
26	231	CFL (18-Watt integral ballast), 2.5 hr/day
27	241	CFL (18-Watt integral ballast), 6.0 hr/day
28	251	ROB 2L4'T8, 1EB
29	252	RET 2L4'T8, 1EB
32	301	HE Refrigerator - Energy Star version of above
33	351	HE Freezer
34	401	Heat Pump Water Heater (EF=2.9)
35	403	Solar Water Heat
36	404	AC Heat Recovery Units
37	405	Low Flow Showerhead
38	406	Pipe Wrap
39	407	Faucet Aerators
40	408	Water Heater Blanket
41	409	Water Heater Temperature Check and Adjustment
42	410	Water Heater Timeclock

43	411	Heat Trap
45	502	Energy Star CW CEE Tier 2 (MEF=2.0)
46	503	Energy Star CW CEE Tier 3 (MEF=2.2)
48	701	Energy Star DW (EF=0.68)
49	801	Two Speed Pool Pump (1.5 hp)
50	802	High Efficiency One Speed Pool Pump (1.5 hp)
51	803	Variable-Speed Pool Pump (<1 hp)
52	804	PV-Powered Pool Pumps
53	901	Energy Star TV
54	921	Energy Star Set-Top Box
55	931	Energy Star DVD Player
56	941	Energy Star VCR
57	951	Energy Star Desktop PC
58	961	Energy Star Laptop PC
	Measure #	**New Measures**
1	352	Freezer recycling
2	302	Refrigerator recycling
3	962	Smart Plug
4	222	LED (12-Watt integral ballast), 0.5 hr/day
5	232	LED (12-Watt integral ballast), 2.5 hr/day
6	242	LED (12-Watt integral ballast), 6.0 hr/day
7	261	LED 13W Outdoor
	Measure #	**Eliminated Measures**
1	101	Base 14 SEER Split-System Air Conditioner
2	109	HVAC Proper Sizing
3	131	Base 14 SEER Split-System Heat Pump
4	135	HVAC Proper Sizing
5	402	High Efficiency CD (EF=3.01 w/moisture sensor)

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential

	Duke Energy Florida - Commercial Measures	
	Measure #	**Measure**
1	111	Premium T8, Electronic Ballast
2	112	Premium T8, EB, Reflector
3	114	Continuous Dimming
4	121	ROB Premium T8, 1EB
5	122	ROB Premium T8, EB, Reflector
6	123	Occupancy Sensor
7	124	Lighting Control Tune-up
8	131	CFL Screw-in 18W
9	141	CFL Hardwired, Modular 18W
10	151	PSMH, magnetic ballast
11	153	High Bay T5
12	161	LED Exit Sign
13	201	High Pressure Sodium 250W Lamp
14	301	Centrifugal Chiller, 0.51 kW/ton, 500 tons
15	302	High Efficiency Chiller Motors
16	304	EMS - Chiller
17	305	Chiller Tune Up/Diagnostics
18	306	VSD for Chiller Pumps and Towers
19	307	EMS Optimization
20	308	Aerosole Duct Sealing
21	309	Duct/Pipe Insulation
22	311	Window Film (Standard)
23	313	Ceiling Insulation
24	314	Roof Insulation
25	315, 336	Cool Roof - Chiller
26	317	Thermal Energy Storage (TES)
27	322	Hybrid Desiccant-DX System (Trane CDQ)
28	323	Geothermal Heat Pump, EER=13, 10 tons
29	326	DX Tune Up/ Advanced Diagnostics
30	327	DX Coil Cleaning
31	328	Optimize Controls - DX
32	361	HE PTAC, EER=9.6, 1 ton
33	362	Occupancy Sensor (Hotels)
34	401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
35	402	Variable Speed Drive Control
36	403	Air Handler Optimization
37	404	Electronically Commutated Motors (ECM) on an Air Handler Unit
38	405	Demand Control Ventilation (DCV)
39	406	Energy Recovery Ventilation (ERV)
40	407	Separate Makeup Air / Exhaust Hoods AC

41	501	High-efficiency fan motors
42	502	Strip curtains for walk-ins
43	503	Night covers for display cases
44	504	Evaporator fan controller for MT walk-ins
45	505	Efficient compressor motor retrofit
46	506	Compressor VSD retrofit
47	507	Floating head pressure controls
48	508	Refrigeration Commissioning
49	509	Demand Hot Gas Defrost
50	510	Demand Defrost Electric
51	511	Anti-sweat (humidistat) controls
52	513	High R-Value Glass Doors
53	514	Multiplex Compressor System
54	515	Oversized Air Cooled Condenser
55	516	Freezer-Cooler Replacement Gaskets
56	517	LED Display Lighting
57	603	Heat Pump Water Heater (air source)
58	604	Solar Water Heater
59	606	Demand controlled circulating systems
60	608	Heat Recovery Unit
61	609	Heat Trap
62	610	Hot Water Pipe Insulation
63	701	PC Manual Power Management Enabling
64	702	PC Network Power Management Enabling
65	711	Energy Star or Better Monitor
66	712	Monitor Power Management Enabling
67	731	Energy Star or Better Copier
68	732	Copier Power Management Enabling
69	741	Printer Power Management Enabling
70	801	Convection Oven
71	811	Efficient Fryer
72	901	Vending Misers
73	202, 211	Outdoor Lighting Controls (Photocell/Timeclock)
74	321A	DX Packaged System, EER=11.9, 10 tons
75	341A	Packaged HP System, EER=11.7, 10 tons
	Measure #	**New Measure**
1	125	LED Linear Tube 22W
2	132	Flood LED 14W
3	146	LED (12-Watt)
4	154	Outdoor LED 104W
5	203	LED High Bay 83W (400W equivalent)
6	337	Run Time Optimizer
7	338	Dehumidification hybrid desiccant heat pump

8	518	Ice Machine
9	611	0.5 Faucet Aerator (DI) - Commercial
10	612	1.0 gpm Faucet Aerator (DI) -Commercial
11	613	1.5 gpm Showerhead (DI) - Commercial
12	703	Server Virtualization
13	812	Griddle
14	813	Steamer
15	814	Holding Cabinet
	Measure #	**Eliminated Measures**
1	601	High Efficiency Water Heater (Electric)

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential

	Duke Energy Florida - Industrial Measures	
	Measure #	**Measure**
1	101	Compressed Air-O&M
2	102	Compressed Air - Controls
3	103	Compressed Air - System Optimization
4	104	Compressed Air- Sizing
5	105	Comp Air - Replace 1-5 HP motor
6	106	Comp Air - ASD (1-5 hp)
7	107	Comp Air - Motor practices-1 (1-5 HP)
8	108	Comp Air - Replace 6-100 HP motor
9	109	Comp Air - ASD (6-100 hp)
10	110	Comp Air - Motor practices-1 (6-100 HP)
11	111	Comp Air - Replace 100+ HP motor
12	112	Comp Air - ASD (100+ hp)
13	113	Comp Air - Motor practices-1 (100+ HP)
14	114	Power recovery
15	115	Refinery Controls
16	201	Fans - O&M
17	202	Fans - Controls
18	203	Fans - System Optimization
19	204	Fans- Improve components
20	205	Fans - Replace 1-5 HP motor
21	206	Fans - ASD (1-5 hp)
22	207	Fans - Motor practices-1 (1-5 HP)
23	208	Fans - Replace 6-100 HP motor
24	209	Fans - ASD (6-100 hp)
25	210	Fans - Motor practices-1 (6-100 HP)
26	211	Fans - Replace 100+ HP motor
27	212	Fans - ASD (100+ hp)
28	213	Fans - Motor practices-1 (100+ HP)
29	214	Optimize drying process
30	301	Pumps - O&M
31	302	Pumps - Controls
32	303	Pumps - System Optimization
33	304	Pumps - Sizing
34	305	Pumps - Replace 1-5 HP motor
35	306	Pumps - ASD (1-5 hp)
36	307	Pumps - Motor practices-1 (1-5 HP)
37	308	Pumps - Replace 6-100 HP motor
38	309	Pumps - ASD (6-100 hp)
39	310	Pumps - Motor practices-1 (6-100 HP)
40	311	Pumps - Replace 100+ HP motor

41	312	Pumps - ASD (100+ hp)
42	313	Pumps - Motor practices-1 (100+ HP)
43	401	Bakery - Process (Mixing) - O&M
44	402	O&M/drives spinning machines
45	403	Air conveying systems
46	404	Replace V-Belts
47	405	Drives - EE motor
48	406	Gap Forming papermachine
49	407	High Consistency forming
50	408	Optimization control PM
51	409	Efficient practices printing press
52	410	Efficient Printing press (fewer cylinders)
53	411	Light cylinders
54	412	Efficient drives
55	413	Clean Room - Controls
56	414	Clean Room - New Designs
57	415	Drives - Process Controls (batch + site)
58	416	Process Drives - ASD
59	417	O&M - Extruders/Injection Molding
60	418	Extruders/injection Moulding-multipump
61	419	Direct drive Extruders
62	420	Injection Moulding - Impulse Cooling
63	421	Injection Moulding - Direct drive
64	422	Efficient grinding
65	423	Process control
66	424	Process optimization
67	425	Drives - Process Control
68	426	Efficient drives - rolling
69	427	Drives - Optimization process (M&T)
70	428	Drives - Scheduling
71	429	Machinery
72	430	Efficient Machinery
73	501	Bakery - Process
74	502	Drying (UV/IR)
75	503	Heat Pumps - Drying
76	504	Top-heating (glass)
77	505	Efficient electric melting
78	506	Intelligent extruder (DOE)
79	507	Near Net Shape Casting
80	508	Heating - Process Control
81	509	Efficient Curing ovens
82	510	Heating - Optimization process (M&T)
83	511	Heating - Scheduling
84	551	Efficient Refrigeration - Operations

85	552	Optimization Refrigeration
86	601	Other Process Controls (batch + site)
87	602	Efficient desalter
88	603	New transformers welding
89	604	Efficient processes (welding, etc.)
90	701	Centrifugal Chiller, 0.51 kW/ton, 500 tons
91	702	High Efficiency Chiller Motors
92	703	EMS - Chiller
93	704	Chiller Tune Up/Diagnostics
94	705	VSD for Chiller Pumps and Towers
95	706	EMS Optimization - Chiller
96	709	Window Film (Standard) - Chiller
97	711,731	Cool Roof
98	722	Hybrid Desiccant-DX System (Trane CDQ)
99	723	Geothermal Heat Pump, EER=13, 10 tons
100	724	DX Tune Up/ Advanced Diagnostics
101	725	DX Coil Cleaning
102	726	Optimize Controls
103	727	Aerosole Duct Sealing
104	728	Duct/Pipe Insulation
105	729	Window Film (Standard)
106	730	Roof Insulation
107	801	Premium T8, Electronic Ballast
108	802	CFL Hardwired, Modular 18W
109	803	CFL Screw-in 18W
110	804	High Bay T5
111	805	Occupancy Sensor
112	902	Membranes for wastewater
113	721A	Base DX Packaged System, EER=11.9, 10 tons
	Measure #	**New Measure**
1	806	LED Linear Tube 22W
2	807	Flood LED 14W
3	808	LED High Bay 83W
4	732	Run Time Optimizer
5	733	Dehumidification Hybrid Desiccant Heat Pump PER 5 TON
	Measure #	**Eliminated Measures**
0		

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential

	Duke Energy Florida - Solar Measures	
	Measure #	**Residential**
1	1	Rooftop Solar PV
	Measure #	**Commercial**
2	1	Rooftop Solar PV

Exhibit No. ____ (HG-5) Duke Energy Florida's Projected Total Technical Potential

	Duke Energy Florida - Demand Response Measures	
	Measure #	**Residential**
1	1	A/C Cycling Switch w/ flat rate
2	2	A/C Shedding Switch w/ flat rate
3	3	Smart Thermostats for A/C w/ CPP
4	4	On-Off Switching via low-power wireless networks for water heating w/ CPP
5	5	On-Off Switching via low-power wireless networks for pool systems w/ CPP
6	6	In-home displays and pre-set control strategies w/ CPP
	Measure #	**Commercial**
1	1	Automated control strategies w/ CPP
2	2	Direct load control system
	Measure #	**Industrial**
1	1	Automated control strategies w/ CPP
2	2	Direct load control system

Exhibit No. ___ (HG-6)
Duke Energy Florida's
Avoided Generation Assumptions

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 1**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2018
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	63.35
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1105
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	6.09
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P1 - COMBINED CYCLE		**unit 2**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2021
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	1,145.43
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	66.82
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.6298
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	4.72
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P2 - COMBINED CYCLE		**unit 3**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2024
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	749.45
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	62.85
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.6782
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	5.21
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 4**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2026
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	63.99
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1347

Exhibit No. ___ (HG-6)
Duke Energy Florida's
Avoided Generation Assumptions

(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	8.72
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P1 - COMBINED CYCLE		**unit 5**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2027
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	1,145.43
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	67.97
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.7303
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	5.81
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 6**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2028
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	64.18
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1415
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	9.38
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P2 - COMBINED CYCLE		**unit 7**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2030
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	749.45
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	63.37
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.7865
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	6.41
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 8**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2036
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%

Exhibit No. ___ (HG-6)
Duke Energy Florida's
Avoided Generation Assumptions

(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	65.00
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1724
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	12.28
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 9**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2038
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	65.24
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1811
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	12.93
(12) Avoided Generating Unit Fuel Escalation Rate		

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		**unit 10**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2039
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	65.36
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1857
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	13.44
(12) Avoided Generating Unit Fuel Escalation Rate		

CC2X1 P1 - COMBINED CYCLE		**unit 11**
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2041
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	$/KW	1,145.43
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	$/kw-year	71.41
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	1.0319
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	9.02
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

Note: all the fixed cost, variable and fuel costs are nominal dollar value in the first year when unit is in service

Exhibit No. (HG-7) Duke Energy Florida's Projected Economic Potential Using RIM

Economic Potential (RIM)

RIM	Summer Peak	Winter Peak	Annual Energy
	(MW)	(MW)	(GWH)
Residential	3,411	3,738	6,348
Commercial	446	261	419
Industrial	0	0	0
Totals	3,856	3,999	6,767

Exhibit No. (HG-7) Duke Energy Florida's Projected Economic Potential Using RIM

Residential Measures
13 EER Geothermal Heat Pump
14 SEER Split-System Heat Pump
15 SEER Split-System Air Conditioner
15 SEER Split-System Heat Pump
17 SEER Split-System Air Conditioner
17 SEER Split-System Heat Pump
19 SEER Split-System Air Conditioner
Ceiling R-0 to R-19 Insulation
Ceiling R-19 to R-38 Insulation
Default Window With Sunscreen
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
HE Room Air Conditioner - EER 11
HE Room Air Conditioner - EER 12
Radiant Barrier
Reflective Roof
Sealed Attic w/Sprayed Foam Insulated Roof Deck
Sealed Attics
Single Pane Clear Windows to Double Pane Low-E Windows
Wall 2x4 R-0 to Blow-In R-13 Insulation
Window Film
Window Tinting

Commercial Measures
Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
Chiller Tune Up/Diagnostics
Cool Roof - Chiller
Cool Roof - DX
Demand Control Ventilation (DCV)
Duct/Pipe Insulation
DX Packaged System, EER=10.9, 10 tons
Electronically Commutated Motors (ECM) on an Air Handler Unit
Energy Recovery Ventilation (ERV)
Geothermal Heat Pump, EER=13, 10 tons
HE PTAC, EER=9.6, 1 ton
LED (12-Watt)
LED Exit Sign
Roof Insulation
Thermal Energy Storage (TES)
Window Film (Standard)

Exhibit No. (HG-8) Duke Energy Florida's Projected Economic Potential Using TRC

Economic Potential (TRC)

TRC	Summer Peak	Winter Peak	Annual Energy
	(MW)	(MW)	(GWH)
Residential	2,589	2,707	6,120
Commercial	491	255	1,700
Industrial	40	30	239
Totals	3,119	2,992	8,059

Exhibit No. (HG-8) Duke Energy Florida's Projected Economic Potential Using TRC

Residential Measures

14 SEER Split-System Heat Pump
15 SEER Split-System Heat Pump
AC Maintenance (Indoor Coil Cleaning)
AC Maintenance (Outdoor Coil Cleaning)
Attic Venting
Ceiling R-0 to R-19 Insulation
CFL (18-Watt integral ballast), 0.5 hr/day
Default Window With Sunscreen
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
HE Freezer
HE Refrigerator - Energy Star version of above
HE Room Air Conditioner - EER 11
HE Room Air Conditioner - EER 12
Heat Pump Water Heater (EF=2.9)
LED 12W, 2.5hr/hday
LED 12W, 6.0hr/hday
LED Directional 13W (Flood, Outdoor)
Photocell/timeclock
Proper Refrigerant Charging and Air Flow
Single Pane Clear Windows to Double Pane Low-E Windows
Variable-Speed Pool Pump (<1 hp)
Water Heater Timeclock
Window Film
Window Tinting

Commercial Measures

Air Handler Optimization
Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
Chiller Tune Up/Diagnostics
Cool Roof - Chiller
Cool Roof - DX
dehumidification hybrid desiccant heat pump
Demand Control Ventilation (DCV)
Demand controlled circulating systems
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Electronically Commutated Motors (ECM) on an Air Handler Unit
EMS - Chiller
EMS Optimization
Energy Recovery Ventilation (ERV)
Flood LED 14W
Griddle
HE PTAC, EER=9.6, 1 ton
Heat Pump Water Heater (air source)
Heat Recovery Unit
High Efficiency Chiller Motors
High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
High R-Value Glass Doors
High-efficiency fan motors
Holding Cabinet
Hot Water Pipe Insulation
Hybrid Dessicant-DX System (Trane CDQ)
Ice Machine
LED (12-Watt)
LED Display Lighting
LED High Bay 83W (400W equivalent)
LED Linear Tube 22W
Lighting Control Tuneup
Occupancy Sensor
Occupancy Sensor (hotels)
Outdoor LED 104W
Outdoor Lighting Controls (Photocell/Timeclock)
Oversized Air Cooled Condenser
Premium T8, EB, Reflector
Premium T8, Electronic Ballast
PSMH, 250 W, electronic ballast
ROB Premium T8, 1EB
ROB Premium T8, EB, Reflector
Roof Insulation
Run Time Optimizer
Solar Water Heater
Steamer
Thermal Energy Storage (TES)
Variable Speed Drive Control
VSD for Chiller Pumps and Towers

Exhibit No. (HG-8) Duke Energy Florida's Projected Economic Potential Using TRC

Window Film (Standard)

Industrial Measures

CFL Hardwired, Modular 18W
Chiller Tune Up/Diagnostics
Clean Room - Controls
Clean Room - New Designs
Comp Air - Motor practices-1 (1-5 HP)
Comp Air - Motor practices-1 (6-100 HP)
Comp Air - Replace 100+ HP motor
Cool Roof - DX
Dehumidification Hybrid Desiccant Heat Pump PER 5 TON
Direct drive Extruders
Drives - EE motor
Drives - Process Control
Drives - Process Controls (batch + site)
Drives - Scheduling
Drying (UV/IR)
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Efficient Curing ovens
Efficient desalter
Efficient electric melting
Efficient Machinery
Efficient Printing press (fewer cylinders)
Efficient processes (welding, etc.)
EMS - Chiller
Extruders/injection Moulding-multipump
Fans - Controls
Fans - Motor practices-1 (1-5 HP)
Fans - Motor practices-1 (6-100 HP)
Fans - Replace 100+ HP motor
Fans - System Optimization
Flood LED 14W (per unit)
Heat Pumps - Drying
Heating - Process Control
Heating - Scheduling
High Efficiency Chiller Motors
Hybrid Dessicant-DX System (Trane CDQ)
Injection Moulding - Direct drive
Injection Moulding - Impulse Cooling
LED High Bay 83W (per unit)
LED Linear Tube 22W (per unit)
Machinery
Membranes for wastewater
New transformers welding
O&M/drives spinning machines
Occupancy Sensor
Optimization control PM
Optimization Refrigeration
Optimize drying process
Other Process Controls (batch + site)
Power recovery
Process control
Process Drives - ASD
Process optimization
Pumps - Motor practices-1 (1-5 HP)
Pumps - Motor practices-1 (6-100 HP)
Pumps - Replace 100+ HP motor
Roof Insulation
Roof Insulation - Chiller
Run Time Optimizer
Window Film (Standard)
Window Film (Standard) - Chiller

Exhibit No. (HG-9) Duke Energy Florida's Measure List Used for Analysis

Residential

13 EER Geothermal Heat Pump
14 SEER Split-System Heat Pump
15 SEER Split-System Air Conditioner
15 SEER Split-System Heat Pump
17 SEER Split-System Air Conditioner
17 SEER Split-System Heat Pump
19 SEER Split-System Air Conditioner
AC Heat Recovery Units
AC Maintenance (Indoor Coil Cleaning)
AC Maintenance (Outdoor Coil Cleaning)
Attic Venting
Ceiling R-0 to R-19 Insulation
Ceiling R-19 to R-38 Insulation
CFL - medium screw based <30 Watts
CFL (18-Watt integral ballast), 0.5 hr/day
CFL (18-Watt integral ballast), 2.5 hr/day
CFL (18-Watt integral ballast), 6.0 hr/day
Default Window With Sunscreen
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
Energy Star CW CEE Tier 2 (MEF=2.0)
Energy Star CW CEE Tier 3 (MEF=2.2)
Energy Star Desktop PC
Energy Star DVD Player
Energy Star DW (EF=0.68)
Energy Star Laptop PC
Energy Star Set-Top Box
Energy Star TV
Energy Star VCR
Faucet Aerators
Freezer recycling
HE Freezer
HE Refrigerator - Energy Star version of above
HE Room Air Conditioner - EER 11
HE Room Air Conditioner - EER 12
Heat Pump Water Heater (EF=2.9)
Heat Trap
High Efficiency One Speed Pool Pump (1.5 hp)
HVAC Proper Sizing
LED 12W Blend
LED 12W, 0.5hr/hday
LED 12W, 2.5hr/hday
LED 12W, 6.0hr/hday
LED Directional 13W (Flood, Outdoor)
Low Flow Showerhead
Photocell/timeclock
Pipe Wrap
Proper Refrigerant Charging and Air Flow
PV-Powered Pool Pumps
Radiant Barrier
Reflective Roof
Refrigerator recycling
RET 2L4'T8, 1EB
ROB 2L4'T8, 1EB
Sealed Attic w/Sprayed Foam Insulated Roof Deck
Sealed Attics
Single Pane Clear Windows to Double Pane Low-E Windows
Smart Plug
Solar Water Heat
Two Speed Pool Pump (1.5 hp)
Variable-Speed Pool Pump (<1 hp)
Wall 2x4 R-0 to Blow-In R-13 Insulation
Water Heater Blanket
Water Heater Temperature Check and Adjustment
Water Heater Timeclock
Weather Strip/Caulk w/Blower Door
Window Film
Window Tinting

Commercial

0.5 Faucet Aerator (DI) - Commercial
1.0 gpm Faucet Aerator (DI) -Commercial
1.5 gpm Shower Head (DI) - Commercial
Aerosol Duct Sealing
Air Handler Optimization
Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
CFL Screw-in 18W
Chiller Tune Up

Exhibit No. (HG-9) Duke Energy Florida's Measure List Used for Analysis

Continuous Dimming
Convection Oven
Cool Roof - Chiller
Cool Roof - DX
Copier Power Management Enabling
dehumidification hybrid desiccant heat pump
Demand Control Ventilation (DCV)
Demand controlled circulating systems
Demand Defrost Electric
Duct/Pipe Insulation
DX Coil Cleaning
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Efficient compressor motor
Efficient Fryer
Electronically Commutated Motors (ECM) on an Air Handler Unit
EMS - Chiller
EMS Optimization
Energy Recovery Ventilation (ERV)
Energy Star or Better Copier
Energy Star or Better Monitor
Floating head pressure controls
Flood LED 14W
Geothermal Heat Pump, EER=13, 10 tons
Griddle
HE PTAC, EER=9.6, 1 ton
Heat Pump Water Heater (air source)
Heat Recovery Unit
Heat Trap
High Bay T5
High Efficiency Chiller Motors
High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
High Pressure Sodium 250W Lamp
High R-Value Glass Doors
High-efficiency fan motors
Holding Cabinet
Hot Water Pipe Insulation
Hybrid Dessicant-DX System (Trane CDQ)
Ice Machine
LED (12-Watt)
LED Display Lighting
LED Exit Sign
LED High Bay 83W (400W equivalent)
LED Linear Tube 22W
Lighting Control Tuneup
Monitor Power Management Enabling
Night covers for display cases
Occupancy Sensor
Optimize Controls
Outdoor LED 104W
Outdoor Lighting Controls (Photocell/Timeclock)
Oversized Air Cooled Condenser
PC Manual Power Management Enabling
Premium T8, EB, Reflector
Premium T8, Electronic Ballast
Printer Power Management Enabling
PSMH, 250 W, electronic ballast
PSMH, 250W, magnetic ballast
ROB Premium T8, 1EB
ROB Premium T8, EB, Reflector
Roof Insulation
Run Time Optimizer
Separate Makeup Air / Exhaust Hoods AC
Server Virtualization
Solar Water Heater
Steamer
Strip curtains for walk-ins
Thermal Energy Storage (TES) Negative
Thermal Energy Storage (TES) Positive
Variable Speed Drive Control
Vending Misers (cooled machines only)
VSD for Chiller Pumps and Towers
Window Film (Standard)

Industrial

Aerosol Duct Sealing
Aerosol Duct Sealing - Chiller
Air conveying systems
Bakery - Process
Bakery - Process (Mixing) - O&M
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
CFL Screw-in 18W
Chiller Tune Up
Clean Room - Controls

Exhibit No. (HG-9) Duke Energy Florida's Measure List Used for Analysis

Clean Room - New Designs
Comp Air - ASD (100+ hp)
Comp Air - ASD (1-5 hp)
Comp Air - ASD (6-100 hp)
Comp Air - Motor practices-1 (100+ HP)
Comp Air - Motor practices-1 (1-5 HP)
Comp Air - Motor practices-1 (6-100 HP)
Comp Air - Replace 100+ HP motor
Comp Air - Replace 1-5 HP motor
Comp Air - Replace 6-100 HP motor
Compressed Air - Controls
Compressed Air - System Optimization
Compressed Air- Sizing
Compressed Air-O&M
Cool Roof - Chiller
Cool Roof - DX
Dehumidification Hybrid Desiccant Heat Pump PER 5 TON
Direct drive Extruders
Drives - EE motor
Drives - Optimization process (M&T)
Drives - Process Control
Drives - Process Controls (batch + site)
Drives - Scheduling
Drying (UV/IR)
Duct/Pipe Insulation
Duct/Pipe Insulation - Chiller
DX Coil Cleaning
DX Packaged System, EER=10.9, 10 tons
DX Tune Up
Efficient Curing ovens
Efficient desalter
Efficient drives
Efficient drives - rolling
Efficient electric melting
Efficient grinding
Efficient Machinery
Efficient practices printing press
Efficient Printing press (fewer cylinders)
Efficient processes (welding, etc.)
Efficient Refrigeration - Operations
EMS - Chiller
EMS Optimization - Chiller
Extruders/injection Moulding-multipump
Fans - ASD (100+ hp)
Fans - ASD (1-5 hp)
Fans - ASD (6-100 hp)
Fans - Controls
Fans - Motor practices-1 (100+ HP)
Fans - Motor practices-1 (1-5 HP)
Fans - Motor practices-1 (6-100 HP)
Fans - O&M
Fans - Replace 100+ HP motor
Fans - Replace 1-5 HP motor
Fans - Replace 6-100 HP motor
Fans - System Optimization
Fans- Improve components
Flood LED 14W (per unit)
Gap Forming papermachine
Geothermal Heat Pump, EER=13, 10 tons
Heat Pumps - Drying
Heating - Optimization process (M&T)
Heating - Process Control
Heating - Scheduling
High Bay T5
High Consistency forming
High Efficiency Chiller Motors
Hybrid Dessicant-DX System (Trane CDQ)
Injection Moulding - Direct drive
Injection Moulding - Impulse Cooling
Intelligent extruder (DOE)
LED High Bay 83W (per unit)
LED Linear Tube 22W (per unit)
Light cylinders
Machinery
Membranes for wastewater
Near Net Shape Casting
New transformers welding
O&M - Extruders/Injection Moulding
O&M/drives spinning machines
Occupancy Sensor
Optimization control PM
Optimization Refrigeration
Optimize Controls
Optimize drying process
Other Process Controls (batch + site)
Power recovery
Premium T8, Electronic Ballast

Exhibit No. (HG-9) Duke Energy Florida's Measure List Used for Analysis

Process control
Process Drives - ASD
Process optimization
Pumps - ASD (100+ hp)
Pumps - ASD (1-5 hp)
Pumps - ASD (6-100 hp)
Pumps - Controls
Pumps - Motor practices-1 (100+ HP)
Pumps - Motor practices-1 (1-5 HP)
Pumps - Motor practices-1 (6-100 HP)
Pumps - O&M
Pumps - Replace 100+ HP motor
Pumps - Replace 1-5 HP motor
Pumps - Replace 6-100 HP motor
Pumps - Sizing
Pumps - System Optimization
Refinery Controls
Replace V-belts
Roof Insulation
Roof Insulation - Chiller
Run Time Optimizer
Top-heating (glass)
VSD for Chiller Pumps and Towers
Window Film (Standard)
Window Film (Standard) - Chiller

Residential DR

Residential Load Management

Commercial/Industrial DR

Standby Generation
Interruptible Service
Curtailable Service

Residential Solar

Solar Water Heating for Low Income
Residential Customers Pilot
Solar Water Heating with Energy Management
Residential Solar Photovoltaic Pilot

Commercial Solar

Commercial Solar Photovoltaic Pilot
Photovoltaic for Schools Pilot
Research & Demonstration Pilot

Exhibit No. (HG-10) Duke Energy Florida's Measures with Less Than Two-year Payback that Passed RIM and Participant Tests

Residential Measures
15 SEER Split-System Air Conditioner
Proper Refrigerant Charging and Air Flow
Default Window With Sunscreen
Electronically Commutated Motors (ECM) on an Air Handler Unit

Commercial Measures
DX Coil Cleaning
EMS - Chiller
Chiller Tune Up
Ceiling Insulation
Roof Insulation
HE PTAC, EER=9.6, 1 ton

Industrial

Exhibit No. (HG-11) Duke Energy Florida's Measures with Less Than Two-year Payback that Passed TRC and Participant Tests

Residential Measures

15 SEER Split-System Air Conditioner
AC Heat Recovery Units
AC Maintenance (Indoor Coil Cleaning)
AC Maintenance (Outdoor Coil Cleaning)
CFL (18-Watt integral ballast), 2.5 hr/day
Default Window With Sunscreen
Faucet Aerators
Freezer recycling
Heat Trap / Single Detached
High Efficiency One Speed Pool Pump (1.5 hp)
Low Flow Showerhead
Proper Refrigerant Charging and Air Flow
Refrigerator recycling
Two Speed Pool Pump (1.5 hp)
Water Heater Blanket
Window Film

U**Commercial Measures**
Aerosol Duct Sealing
Air Handler Optimization
Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Screw-in 18W
Chiller Tune Up
Demand controlled circulating systems
Demand Defrost Electric
DX Coil Cleaning
DX Tune Up / Advanced Diagnostics
Efficient compressor motor
Electronically Commutated Motors (ECM) on an Air Handler Unit
EMS - Chiller
EMS Optimization
Energy Star or Better Monitor
Floating head pressure controls
HE PTAC, EER=9.6, 1 ton
Heat Pump Water Heater (air source)
Heat Recovery Unit
Heat Trap
High Bay T5
High Efficiency Chiller Motors
Lighting Control Tuneup
Monitor Power Management Enabling
Night covers for display cases
Optimize Controls (Photocell/Timeclock)
PC Manual Power Management Enabling
PC Network Power Management Enabling
Printer Power Management Enabling
PSMH, 250 W, electronic ballast
PSMH, 250W, magnetic ballast
ROB Premium T8, 1EB
ROB Premium T8, EB, Reflector
Roof Insulation
Separate Makeup Air / Exhaust Hoods AC
Strip curtains for walk-ins
Variable Speed Drive Control
Vending Misers (cooled machines only)
VSD for Chiller Pumps and Towers
Window Film (Standard)

U**Industrial Measures**
Aerosol Duct Sealing
Aerosol Duct Sealing - Chiller
Air conveying systems
Bakery - Process
Bakery - Process (Mixing) - O&M
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Screw-in 18W
Comp Air - ASD (100+ hp)
Comp Air - ASD (6-100 hp)
Compressed Air - Controls
Compressed Air - System Optimization
Compressed Air- Sizing
Compressed Air-O&M
Drives - EE motor
Drives - Optimization process (M&T)
Efficient drives
Efficient drives - rolling
Efficient practices printing press

Exhibit No. (HG-11) Duke Energy Florida's Measures with Less Than Two-year Payback that Passed TRC and Participant Tests

Efficient Refrigeration - Operations
Fans - ASD (100+ hp)
Fans - ASD (6-100 hp)
Fans- Improve components
Gap Forming papermachine
Heating - Optimization process (M&T)
High Bay T5
High Consistency forming
Machinery
Near Net Shape Casting
O&M - Extruders/Injection Moulding
Premium T8, Electronic Ballast
Pumps - ASD (100+ hp)
Pumps - ASD (6-100 hp)
Pumps - Controls
Pumps - O&M
Pumps - Sizing
Pumps - System Optimization
Replace V-belts
Top-heating (glass)
VSD for Chiller Pumps and Towers

Exhibit No. (HG-12) Duke Energy Florida's Projected Achievable Amount of DSM Savings Using RIM and Participant Tests

Achievable Potential (RIM)

Segment	Summer Peak	Winter Peak	Annual Energy
	(MW)	(MW)	(GWH)
Residential	164	348	116
Commercial/Industrial	81	48	68
Totals	245	396	184

Values are at the Meter

Exhibit No. (HG-12) Duke Energy Florida's Projected Achievable Amount of DSM Savings Using RIM and Participant Tests

Residential Measures

14 SEER Split-System Heat Pump
15 SEER Split-System Heat Pump
Ceiling R-0 to R-19 Insulation
Default Window With Sunscreen
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
Single Pane Clear Windows to Double Pane Low-E Windows
Window Film

Commercial Measures

Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
Chiller Tune Up/Diagnostics
Cool Roof - Chiller
Cool Roof - DX
Demand Control Ventilation (DCV)
DX Packaged System, EER=10.9, 10 tons
Energy Recovery Ventilation (ERV)
HE PTAC, EER=9.6, 1 ton
Roof Insulation
Thermal Energy Storage (TES)

Industrial Measures

Residential DR Measures
Residential Load Management

Commercial/Industrial DR Measures

Standby Generation
Interruptible Service
Curtailable Service

Exhibit No. (HG-13) Duke Energy Florida's Projected Achievable Amount of DSM Savings Using TRC and Participant Tests

Achievable Potential (TRC)

Segment	Summer Peak	Winter Peak	Annual Energy
	(MW)	(MW)	(GWH)
Residential	187	368	254
Commercial/Industrial	129	64	217
Totals	316	432	471

Values are at the Meter

Exhibit No. (HG-13) Duke Energy Florida's Projected Achievable Amount of DSM Savings Using TRC and Participant Tests

Residential Measures

14 SEER Split-System Heat Pump
15 SEER Split-System Heat Pump
Attic Venting / Single Detached
Ceiling R-0 to R-19 Insulation
CFL (18-Watt integral ballast), 0.5 hr/day
Default Window With Sunscreen
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
HE Refrigerator - Energy Star version of above
HE Room Air Conditioner - EER 11
HE Room Air Conditioner - EER 12
Heat Pump Water Heater (EF=2.9)
LED 12W, 2.5hr/hday
LED 12W, 6.0hr/hday
Proper Refrigerant Charging and Air Flow
Single Pane Clear Windows to Double Pane Low-E Windows
Variable-Speed Pool Pump (<1 hp)
Water Heater Timeclock
Window Film
Window Tinting

Commercial Measures

Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
Chiller Tune Up/Diagnostics
Cool Roof - Chiller
Cool Roof - DX
dehumidification hybrid desiccant heat pump
Demand Control Ventilation (DCV)
Demand controlled circulating systems
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Electronically Commutated Motors (ECM) on an Air Handler Unit
EMS - Chiller
Energy Recovery Ventilation (ERV)
Griddle
HE PTAC, EER=9.6, 1 ton
Heat Pump Water Heater (air source)
Heat Recovery Unit
High Efficiency Chiller Motors
High R-Value Glass Doors
High-efficiency fan motors
Holding Cabinet
Hybrid Dessicant-DX System (Trane CDQ)
LED High Bay 83W (400W equivalent)
Occupancy Sensor
Occupancy Sensor (Hotels)
Outdoor LED 104W
Oversized Air Cooled Condenser
Premium T8, EB, Reflector
Premium T8, Electronic Ballast
PSMH, 250 W, electronic ballast
ROB Premium T8, 1EB
ROB Premium T8, EB, Reflector
Roof Insulation
Run Time Optimizer
Solar Water Heater
Steamer
Thermal Energy Storage (TES)
Variable Speed Drive Control
VSD for Chiller Pumps and Towers
Window Film (Standard)

Industrial Measures

CFL Hardwired, Modular 18W
Chiller Tune Up/Diagnostics
Clean Room - Controls
Clean Room - New Designs
Comp Air - Motor practices-1 (1-5 HP)
Dehumidification Hybrid Desiccant Heat Pump PER 5 TON
Direct drive Extruders
Drives - EE motor
Drives - Process Control
Drives - Process Controls (batch + site)
Drives - Scheduling

Exhibit No. (HG-13) Duke Energy Florida's Projected Achievable Amount of DSM Savings Using TRC and Participant Tests

Drying (UV/IR)
Efficient Curing ovens
Efficient desalter
Efficient electric melting
Efficient Machinery
Efficient Printing press (fewer cylinders)
Efficient processes (welding, etc.)
EMS - Chiller
Extruders/injection Moulding-multipump
Fans - Controls
Fans - Motor practices-1 (1-5 HP)
Fans - System Optimization
Heat Pumps - Drying
Heating - Process Control
Heating - Scheduling
High Efficiency Chiller Motors
Hybrid Dessicant-DX System (Trane CDQ)
Injection Moulding - Direct drive
Injection Moulding - Impulse Cooling
LED High Bay 83W (per unit)
Machinery
Membranes for wastewater
New transformers welding
O&M/drives spinning machines
Occupancy Sensor
Optimization control PM
Optimization Refrigeration
Optimize drying process
Other Process Controls (batch + site)
Process control
Process optimization
Pumps - Motor practices-1 (1-5 HP)
Roof Insulation
Roof Insulation - Chiller
Run Time Optimizer

Residential DR Measures

Residential Load Management

Commercial/Industrial DR Measures

Standby Generation
Interruptible Service
Curtailable Service

Exhibit No. HG-14 Duke Energy Florida's Economic Potential Sensitivity Analysis

RIM	Summer System Peak			Winter System Peak			Annual Energy		
	Technical Potential (MW)	Economic Potential (MW)	(%)	Technical Potential (MW)	Economic Potential (MW)	(%)	Technical Potential (gWh)	Economic Potential (gWh)	(%)
Residential									
Base	1,814	3,411	188%	1,111	3,738	337%	7,973	6,348	80%
1-yr payback	1,814	3,853	212%	1,111	3,738	337%	7,973	7,076	89%
3-yr payback	1,814	2,527	139%	1,111	3,000	270%	7,973	5,391	68%
With CO2	1,814	3,331	184%	1,111	3,654	329%	7,973	6,141	77%
Low Fuel	1,814	3,331	184%	1,111	3,654	329%	7,973	6,141	77%
High Fuel	1,814	3,331	184%	1,111	3,654	329%	7,973	6,141	77%
Commercial									
Base	771	446	58%	356	261	73%	3,611	419	12%
1-yr payback	771	480	62%	356	279	78%	3,611	485	13%
3-yr payback	771	412	53%	356	245	69%	3,611	360	10%
With CO2	771	446	58%	356	261	73%	3,611	419	12%
Low Fuel	771	446	58%	356	261	73%	3,611	419	12%
High Fuel	771	446	58%	356	261	73%	3,611	419	12%
Industrial									
Base	67	0	0%	44	0	0%	489	0	0%
1-yr payback	67	0	0%	44	0	0%	489	0	0%
3-yr payback	67	0	0%	44	0	0%	489	0	0%
With CO2	67	0	0%	44	0	0%	489	0	0%
Low Fuel	67	0	0%	44	0	0%	489	0	0%
High Fuel	67	0	0%	44	0	0%	489	0	0%
TOTAL									
Base	2,651	3,856	145%	1,511	3,999	265%	12,073	6,767	56%
1-yr payback	2,651	4,333	163%	1,511	4,017	266%	12,073	7,561	63%
3-yr payback	2,651	2,939	111%	1,511	3,246	215%	12,073	5,751	48%
With CO2	2,651	3,777	142%	1,511	3,915	259%	12,073	6,559	54%
Low Fuel	2,651	3,777	142%	1,511	3,915	259%	12,073	6,559	54%
High Fuel	2,651	3,777	142%	1,511	3,915	259%	12,073	6,559	54%

Exhibit No. HG-14 Duke Energy Florida's Economic Potential Sensitivity Analysis

TRC	Summer System Peak			Winter System Peak			Annual Energy		
	Technical Potential (MW)	Economic Potential (MW)	Economic Potential (%)	Technical Potential (MW)	Economic Potential (MW)	Economic Potential (%)	Technical Potential (gWh)	Economic Potential (gWh)	Economic Potential (%)
Residential									
Base	1,814	2,589	143%	1,111	2,707	244%	7,973	6,120	77%
1-yr payback	1,814	3,506	193%	1,111	3,407	307%	7,973	8,174	103%
3-yr payback	1,814	1,598	88%	1,111	1,951	176%	7,973	4,611	58%
With CO2	1,814	2,589	143%	1,111	2,707	244%	7,973	6,120	77%
Low Fuel	1,814	2,570	142%	1,111	2,707	244%	7,973	6,077	76%
High Fuel	1,814	2,636	145%	1,111	2,729	246%	7,973	6,302	79%
Commercial									
Base	771	491	64%	356	255	72%	3,611	1,700	47%
1-yr payback	771	608	79%	356	313	88%	3,611	2,213	61%
3-yr payback	771	358	46%	356	210	59%	3,611	1,066	30%
With CO2	771	491	64%	356	255	72%	3,611	1,703	47%
Low Fuel	771	483	63%	356	255	72%	3,611	1,680	47%
High Fuel	771	491	64%	356	255	72%	3,611	1,705	47%
Industrial									
Base	67	40	59%	44	30	69%	489	239	49%
1-yr payback	67	56	84%	44	46	103%	489	385	79%
3-yr payback	67	32	47%	44	22	50%	489	169	35%
With CO2	67	40	59%	44	30	69%	489	239	49%
Low Fuel	67	37	56%	44	30	68%	489	226	46%
High Fuel	67	40	59%	44	30	69%	489	239	49%
TOTAL									
Base	2,651	3,119	118%	1,511	2,992	198%	12,073	8,059	67%
1-yr payback	2,651	4,170	157%	1,511	3,765	249%	12,073	10,772	89%
3-yr payback	2,651	1,987	75%	1,511	2,183	144%	12,073	5,846	48%
With CO2	2,651	3,120	118%	1,511	2,993	198%	12,073	8,062	67%
Low Fuel	2,651	3,089	117%	1,511	2,991	198%	12,073	7,982	66%
High Fuel	2,651	3,167	119%	1,511	3,015	200%	12,073	8,246	68%

Exhibit No. (HG-15) Duke Energy Florida Solar Pilot Program
Summaries of Achievements and Expenditures

DEF Solar Pilot Program Participation Summary

Summary of Renewable Pilot Program Achievements 2011 through 2013

	SYSTEM TOTAL 2011				SYSTEM TOTAL 2012				SYSTEM TOTAL 2013			
	COMPL	WKW	SKW	KWH	COMPL	WKW	SKW	KWH	COMPL	WKW	SKW	KWH
Residential Renewable Pgms												
Solar Whr with Load Mgmt	230	492.200	255.300	388,816	358	766.120	397.380	585,649	*259*	*554.260*	*287.490*	*438,982*
Solar Whr for Low Income	13	4.660	4.250	27,067	26	8.260	7.600	48,093	*24*	*8.400*	*7.710*	*48,740*
Solar PV Rebate	88	0.000	178.105	929,500	106	0.000	231.141	1,206,239	*152*	*0.000*	*370.616*	*1,934,123*
Total Residential Renewable Pgms	***331***	***496.860***	***437.655***	***1,345,383***	***490***	***774.380***	***636.121***	***1,839,981***	***435***	***562.660***	***665.817***	***2,421,845***
Commercial Renewable Pgms												
Solar PV for Schools	10	0.000	60.800	317,300	2	0.000	32.000	167,000	*11*	*0.000*	*60.518*	*315,827*
Solar PV Rebate	16	0.000	202.382	1,056,202	11	0.000	256.582	1,339,034	*12*	*0.000*	*195.028*	*1,017,795*
Total Commercial Renewable Pgms	***26***	***0.000***	***263.182***	***1,373,502***	***13***	***0.000***	***288.582***	***1,506,034***	***23***	***0.000***	***255.546***	***1,333,622***
Total Renewable Programs	***357***	***496.860***	***700.837***	***2,718,885***	***503***	***774.380***	***924.703***	***3,346,015***	***458***	***562.660***	***921.362***	***3,755,467***

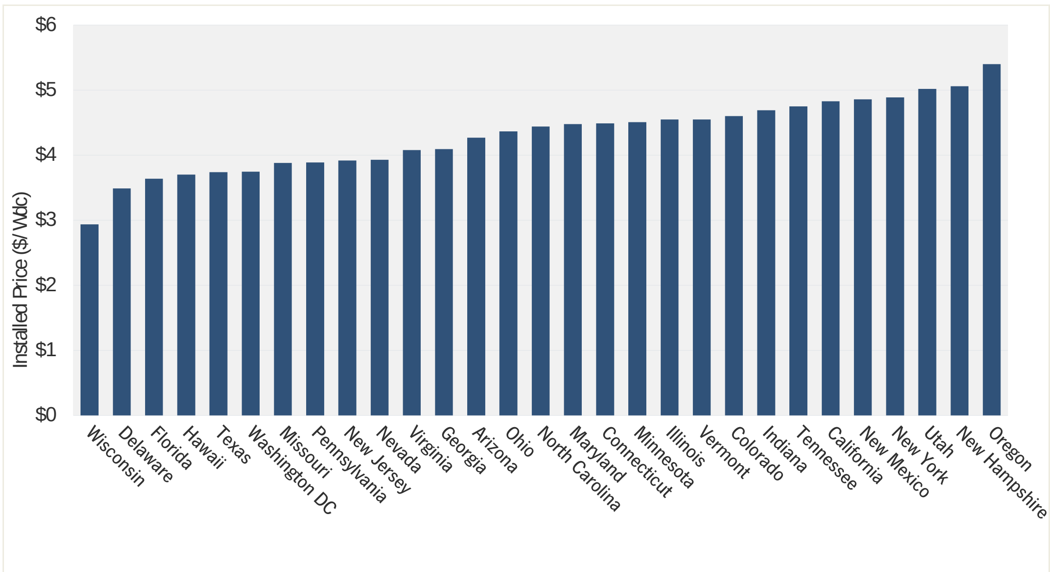
DEF Solar Pilot Program Expenditure Summary

Summary of Renewable Pilot Program Expenditures 2011 through 2013

Program	2011	2012	2013
PHOTOVOLTAIC FOR SCHOOLS PILOT	1,696,508	1,543,544	857,348
COMMERCIAL SOLAR PHOTOVOLTAIC PILOT	948,154	886,728	920,291
SOLAR WATER HEATING WITH ENERGY MANAGEMENT PILOT	198,979	217,569	170,584
SOLAR WATER HEAT LOW INCOME PILOT	74,062	124,219	123,593
RESIDENTIAL SOLAR PHOTOVOLTAIC PILOT	1,323,983	1,556,504	2,642,424
RESEARCH AND DEMONSTRATION PILOT	176,562	316,935	11,026

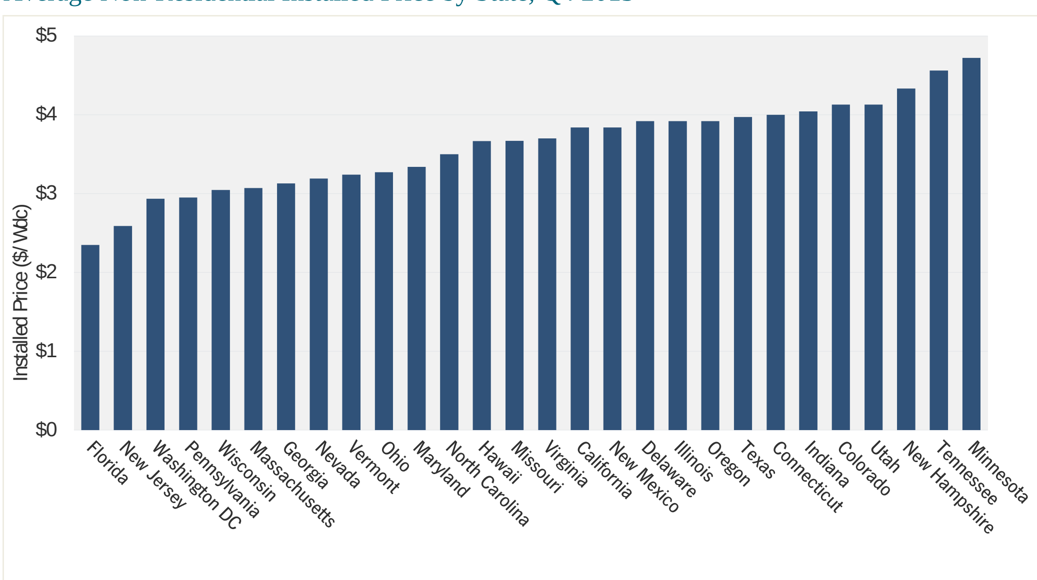
Exhibit No. (HG-16) Average Residential and Average Non-Residential Installed Price of Solar by State Q4 2013

Average Residential Installed Price by State, Q4 2013



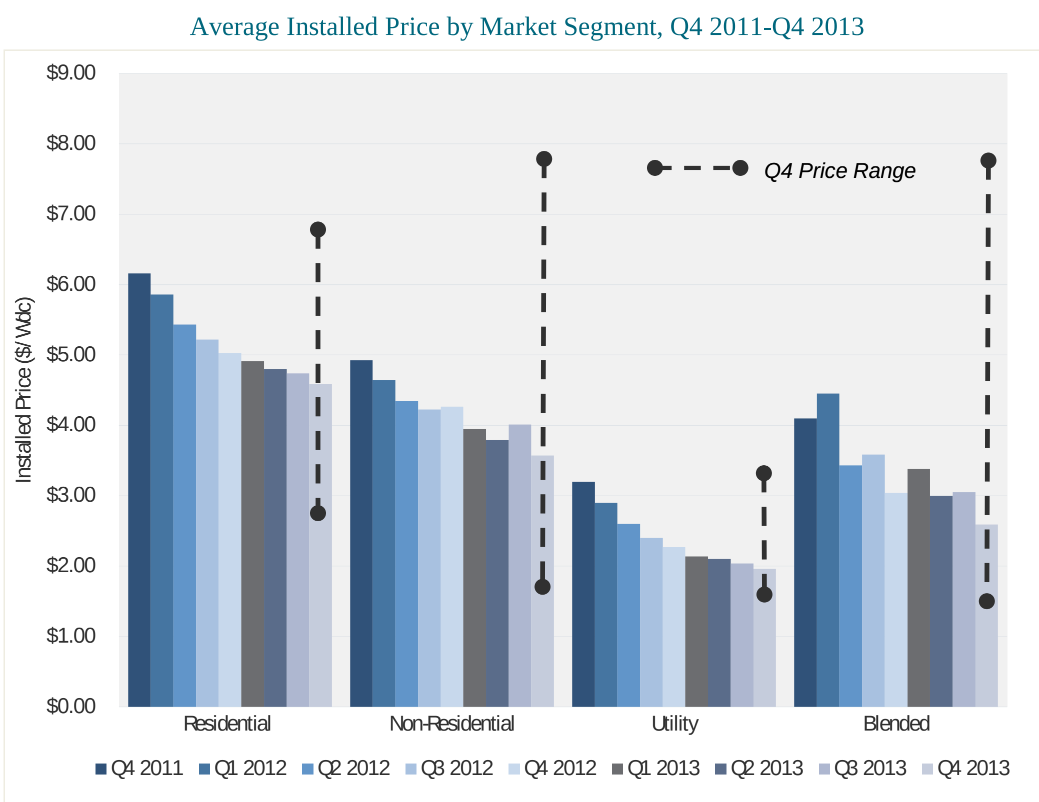
Source: GTM Research/SEIA, "U.S. Solar Market Insight Report: 2013 Year-in-Review."

Average Non-Residential Installed Price by State, Q4 2013



Source: GTM Research/SEIA, "U.S. Solar Market Insight Report: 2013 Year-in-Review."

Exhibit No. (HG-17) Average Installed Price of Solar by Market Segment Q4 2011 through Q4 2013



Source: GTM Research/SEIA, "U.S. Solar Market Insight Report: 2013 Year-in-Review."