BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF THOMAS R. KOCH

DOCKET NO. 130199-EI

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Q. Please state your name and business address.

A. My name is Thomas R. Koch. My business address is 9250 W. Flagler Street, Miami, Florida 33174.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company (FPL) as Senior Manager, Demand-Side Management Strategy, Cost & Performance.

Q. Please describe your duties and responsibilities in that position.

A. I am responsible for regulatory filings, reporting and cost management for FPL's Demand-Side Management (DSM) related activities.

Q. Please describe your educational background and professional experience.

A. I have a Master of Business Administration and a Master of Science in Computer Information Systems, both from University of Miami, and a Bachelor of Music from West Chester University.

I joined FPL's Finance Department in 1985 working on forecasting and regulatory projects. In 1989 I became Treasury Manager responsible for FPL's short-term cash management, investing and borrowing. In 1991, I joined Customer Service where I was responsible for program management of various tariffed offerings, product development and commercial/industrial retail market strategy. Beginning in 1998, I served in a number of positions in Distribution: Manager, Development & Planning; Manager, Environmental Department; Manager, Underground Department; and Manager, Financial Forecasting. In these positions I was responsible for: day-to-day field operations; regulatory proceedings; growth activities; policy and procedure development; and regulation compliance. In 2009, I rejoined Customer Service, initially working on securing FPL's $200 million award from the Department of Energy's Smart Grid Investment Grant program and then on DSM. I assumed my current position in 2011.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibits TRK-1 through TRK-8, which are attached to my testimony:

TRK-1 – FPL's DSM National Performance Rankings

TRK-2 – 2014 Technical Potential Energy Efficiency Measures

TRK-3 – 2014 Technical Potential Update Methodology

TRK-4 – 2014 Technical Potential Results Summary

TRK-5 – Technical Potential for Economic Screening Sensitivities

TRK-6 – 2015-2024 Achievable Potential – RIM & TRC

TRK-7 – Proposed 2015-2024 DSM Goals

TRK-8 – Solar Pilots Results

Q. What is the purpose of your testimony?

A. The purpose of my testimony is the following:

- Describe FPL's historical DSM performance
- Discuss impacts of significant market forces on utility-sponsored DSM
- Discuss the steps in FPL's DSM Goals development process for which I am responsible, including the impact of significant market forces on those steps
- Summarize FPL's proposed 2015-2024 DSM Goals
- Report on the results of demand-side pilots for solar water heating and solar photovoltaic technologies as part of FPL's current DSM Plan (Solar Pilots)

Q. Please summarize your testimony.

A. The purpose of utility-sponsored DSM in fulfilling the intent of the Florida Energy Efficiency and Conservation Act (FEECA) should be straightforward – to encourage customers to implement cost-effective conservation measures (which reduce peak demand and/or energy usage) that they would not otherwise implement on their own. Utilities' DSM programs pick up where the Florida Building Code and federal equipment manufacturing standards (collectively, Codes & Standards) leave off, by promoting cost-effective efficiency beyond the government mandates. The impact of Codes & Standards has been dramatic and provides an important frame of reference for the role of utility DSM. Because utility DSM programs are funded by the general body of customers, it is important that DSM is implemented in a cost-effective manner to ensure fairness for all customers. In addition, DSM represents one of two types of resources available to address future load needs (the other being generation resources), so it is important that the level of DSM be based on sound economic analysis in which those two types of resources compete to provide the best result for customers.

Historical DSM Performance – FPL is one of the industry leaders in DSM. For more than three decades, FPL has focused on delivering DSM programs that help customers manage their energy use while maintaining the discipline to avoid promoting DSM measures that result in higher electric rates than supply-side options. For the majority of this time, consistent with FEECA and the Commission's DSM Goals Rule (Rule 25-17.0021), certain critical goal-setting policies have been followed to ensure the best balance of resources was achieved. Following these policies yielded resource plans, including DSM portfolios, which have provided the most favorable long-term electric rate impact for all customers. However, in the 2009 DSM Goals proceeding, the Florida Public Service Commission's (Commission) decision deviated from these policies, which resulted in setting inappropriately high Goals. This is discussed in detail by FPL witness Deason. The situation was partially mitigated for FPL's customers by the Commission's subsequent decision on FPL's DSM Plan (Order No. PSC-11-0346-PAA-EG, consummated by Order No. PSC-11-0590-FOF-EG). This DSM Plan consists of the DSM programs approved by the Commission in 2004 and subsequent modifications approved by the Commission in 2006. With subsequent adjustments for 2012 Florida Building Code changes, this is the DSM Plan currently in place.

Significant Market Forces – There are two significant marketplace changes that are already affecting certain FPL DSM programs and will play an even more significant role during future years. First, as discussed in more detail in FPL witness Sim's testimony, a number of FPL's system costs (e.g., fuel, environmental compliance, etc.) have experienced a significant decline in recent years. Reductions in system costs result in enormous benefits for all FPL customers and Florida as a whole. However, avoiding these, and other, system costs represents the main cost-effectiveness benefits achieved through DSM. Accordingly, if the costs "to be avoided" by DSM are lower, then fewer DSM programs will be cost-effective.

Second, there have been increases in mandated energy efficiency as a result of changes to Codes & Standards. The effect of these Codes & Standards is positive for overall energy efficiency in Florida because it means that 100% of customers are subject to governmental requirements to install higher efficiency end-uses, rather than just those that a utility could induce through one of its DSM programs. However, these mandated improvements also have the effect of significantly reducing the amount of incremental efficiency benefits achievable from a participating customer installing even more efficient end-use equipment. This, in turn, diminishes the number and scope of cost-effective DSM programs/measures. It should be recognized that these increased Codes & Standards represent normal external forces which FPL must account for in its forecasting and planning and necessarily will reduce the amount of cost effective utility-sponsored DSM. This result should not be viewed as a negative, but rather as a positive in that (as a whole) customer usage is much more energy efficient than it was even five years ago.

Proposed DSM Goals Development Process – As explained in greater detail by FPL witness Sim, the Goals development process involves multiple analyses in a six-step process. First, a Technical Potential (TP) analysis determines the breadth of measures to be considered and their maximum hypothetical demand and energy savings. Second, FPL's resource needs during the DSM Goals timeframe are determined. Third, a preliminary economic screening (Economic Potential) of the DSM measures is derived based on the Participant, Rate Impact Measure (RIM), and Total Resource Cost (TRC) preliminary screening tests, and their maximum rebate amounts are calculated. At this stage of the process, FPL also performed Staff-requested sensitivity analyses to assess the impact of variations in certain key assumptions: higher and lower fuel costs, shorter and longer (1 and 3-year) customer payback for free ridership; and inclusion of CO_2 costs. Fourth, the 10-year (2015-2024) Achievable Potential (AP) is determined based on the maximum rebate levels for all measures that passed the prior screening. In the fifth and sixth steps, various resource plans are developed and analyzed, respectively, to determine the optimum level of DSM Goals. I discuss the first and fourth steps (development of TP and AP), while FPL witness Sim discusses the other steps in the analytical process.

FPL's Proposed 2015-2024 DSM Goals – FPL's proposed cumulative DSM Goals for 2015-2024 are 337 Summer MW, 189 Winter MW and 59 GWh. They are the result of FPL's robust analytical process, requiring months of analyses. FPL's proposed Goals were developed in compliance with Rule 25-17.0021 and the Commission's traditional policies on DSM goal-setting that have provided large cumulative amounts of DSM savings over the years. FPL's proposal will establish DSM Goals at an appropriate level while continuing to maintain low electric rates for all FPL customers.

Solar Pilots Results – FPL is a long-time proponent of solar and currently operates 110 MW in Florida, which is far more than any other entity (utility or non-utility) in the state. In its 2009 Goals decision, the Commission directed the investor-owned FEECA utilities to file demand-side pilots for solar water heating and solar photovoltaic technologies as part of their DSM Plans. The Solar Pilots are subject to an annual expenditure cap, which for FPL is approximately $15.5 million. The Commission approved seven Solar Pilots for FPL. Since the Solar Pilots' initial launch in mid-2011 through year-end 2013, FPL's general body of customers has spent a total of approximately $30 million on the pilots. Analysis during the 2009 Goals proceeding showed that no demand-side solar measures were cost-effective and FPL's experience since 2011 when FPL's Solar Pilots were first launched has shown this remains the case. At this point, these Solar Pilots have run long enough to fully understand that they are an inefficient and unfair way to encourage solar. The great majority of FPL customers, who do not participate in the Solar Pilots, are subsidizing the uneconomic installation of solar measures for the very small fraction of customers who do. Accordingly, it is incumbent upon proponents of such programs to furnish compelling reasons and data for why the pilots should be continued after their expiration at the end of 2014.

I. FPL'S HISTORICAL DSM PERFORMANCE

Q. Please provide an overview of FPL's history and results in implementing DSM.

A. FPL began offering DSM programs in the late 1970s prior to the Florida Legislature's adoption of FEECA in 1980. Since then, FPL has maintained a continuous commitment to DSM. As described in greater detail by FPL witness Sim, FPL has made DSM an integral part of its Integrated Resource Planning (IRP) process and has consistently evaluated DSM in accordance with the Commission's long-standing goal-setting policies. Through this process, FPL has developed a wide array of cost-effective load management and energy efficiency programs for both residential and business customers, which have achieved large cumulative reductions. Through year-end 2013, summer peak demand has been reduced by 4,753 Megawatts (MW), eliminating the need to construct the equivalent of more than 14 new 400 MW generating units. Annual energy consumption has been reduced by 66,782 Gigawatt-hours (GWh), equal to the consumption of all of FPL's residential customers for more than a year. This reduction in consumption has resulted in approximately 50.7 million tons of avoided CO_2 emissions (the equivalent of removing approximately 9.7 million passenger cars from the road). FPL's long-term continuous commitment to DSM has placed us among the industry leaders in terms of reducing the demand for electricity. At the same time the discipline of working within the traditional Commission goal-setting policies has helped ensure that our bills are among the lowest in the state and well below the national average.

Q. By what measures is FPL among the industry leaders in DSM performance?

A. The U.S. Department of Energy (DOE) reports on the results of utility DSM efforts through its Energy Information Administration (EIA). The EIA, using utilities' self-reported data, reports both load management and energy efficiency achievement. It is reasonable and appropriate to view EIA's results as directionally indicative of FPL's performance.

As shown on Exhibit TRK-1, based on the latest EIA comparative data for the year 2012, FPL is nationally ranked 2^{nd} in terms of cumulative MW of total DSM defined as Energy Efficiency (EE) and Load Management (LM) combined. For cumulative MW of LM and EE individually, FPL ranked 2^{nd} and 3^{rd}, respectively. Additionally, FPL ranked 4^{th} in terms of EE cumulative GWh.

FPL's successful DSM performance is not simply due to its size. FPL system peak represents only 2% of total U.S. peak demand, but FPL has achieved 7% of the total DSM MW nationally, 9% of total EE, and 6% of total LM. So, compared to the industry, FPL has been aggressive and successful in capturing cost-effective DSM for the benefit of its customers.

Q. Has this success resulted in high electric rates and bills for FPL's customers?

A. No. Through disciplined evaluation of DSM and adherence to the Commission's long-standing DSM policies, FPL has been able to achieve this success while keeping electric rates low for all customers. This approach is a contributor to FPL's typical residential monthly bill being the lowest in Florida and approximately 25% below the national average. Clearly, the manner in which FPL and the Commission have historically implemented DSM is working (including the 2011 decision modifying FPL's DSM Plan). In other words, FPL's and the Commission's focus on cost-effective DSM has been successfully striking the balance between energy conservation and maintaining low rates for all customers.

Q. Please provide some examples of FPL's load management and energy efficiency programs.

A. FPL operates one of the largest load management programs in the nation. As of year-end 2013, FPL's Residential On Call program, established in 1987, was the largest residential load control program in the United States with about 830,000 participants. Along with FPL's 22,000 business load management participants, FPL currently has approximately 1,900 MW of summer load management demand reduction available for use by FPL's system operators. One example of FPL's energy efficiency programs is the Residential Air Conditioning program which has helped more than 1.6 million customers make their home's largest source of energy use more efficient than required by the Codes & Standards that were applicable at the time of installation.

Q. Does FPL also emphasize customer education as part of its DSM portfolio?

A. Yes. FPL uses Home Energy Surveys (HES) and Business Energy Evaluations (BEE) as a foundational component of its DSM portfolio. These are used for customer education on conservation measures that make economic sense, whether offered as a part of FPL's programs or not. Since 1981, FPL has performed over 3.3 million HESs and almost 200,000 BEEs. In 2013, more than 550 residential customers per day had an HES and almost 50 business customers per day had FPL conduct a BEE. FPL also searches for the most cost-effective delivery method that still meets our customers' needs by offering on-site, phone or online channels. Additionally, FPL extended this education to the new housing market through the BuildSmart™ program which helps builders to meet and exceed the requirements of Florida's Energy Efficiency Code for Building Construction.

II. SIGNIFICANT MARKET FORCES

Q. What marketplace changes are impacting utility-sponsored DSM?

A. There are two significant marketplace changes affecting FPL's DSM programs. First is the significant decline in recent years of a number of FPL's system costs (e.g., fuel, emissions allowance costs, etc.). Though these reductions result in enormous benefits for all FPL customers and Florida as a whole, avoiding system costs represents the main cost-effectiveness benefits achieved through DSM. Accordingly, if the costs "to be avoided" by DSM are lower, then fewer DSM programs will be cost-effective. FPL witness Sim explains the reduction of FPL's system costs and its impact in his testimony. Second is the more stringent Codes & Standards, which impact Heating, Ventilation & Air Conditioning (HVAC) and lighting measures during the Goals time period.

Q. Please elaborate on the effects of increased Codes & Standards.

A. Increased Codes & Standards impact all residents and businesses by mandating higher energy efficiency minimums for prospective end-use equipment installations and/or building design improvements. In terms of the summer peak, the cumulative impact from Codes and Standards based on savings beginning in 2005 and extending through 2014 is estimated at approximately 1,700 MW. By 2024, the impact from Codes and Standards is projected to increase by an approximate additional 1,800 MW for a cumulative savings of 3,500 MW. Thus, the cumulative impact from Codes and Standards is expected to more than double during the current goal-setting period (2015 to 2024) thereby reducing the growth in FPL's summer peak by almost 30%. Because all customers must comply with these higher energy efficiency requirements, market penetration and therefore conservation impacts will be much higher as compared to induced participation in voluntary utility programs. Utility-offered DSM programs are affected in two ways by these increases. First, any utility-offered measures that are no longer above Codes & Standards are rendered obsolete. The previously-achieved utility participation and energy and demand savings will now be attained by the Codes & Standards instead, thereby replacing efficiency gains that used to be obtained from DSM programs. For example, the minimum residential air conditioning Seasonal Energy Efficiency Ratio (SEER) standard is being increased from the current level of 13 to 14 in 2015. As a result, FPL's current 14 SEER measure must be eliminated from FPL's DSM program.

Second, the "baseline" efficiency level will also increase, reducing the incremental savings that the remaining DSM measures can achieve. For example, the residential air conditioning SEER level increase from 13 to 14 results in a loss of 0.13 Summer kW and 275 annual kWh incremental savings for all higher SEER units. For a customer installing a straight-cool air conditioner with a 16 SEER, this represents efficiency replacements of more than 35% for both Summer kW and annual kWh from the current 0.36 Summer kW and 731 annual kWh savings (relative to the previous 13 SEER baseline). This Codes & Standards replacement of participating customer demand and energy savings will significantly affect utility program/measure cost-effectiveness and put downward pressure on proposed DSM Goals, simply because there are less savings to be realized through DSM programs.

Q. Will the impact of changes in Codes & Standards during the upcoming DSM Goals period be substantially greater than in prior periods?

A. Yes. Codes & Standards have been increased periodically in the past. However, during the 2015-2024 time period that is being used to set DSM Goals in this proceeding, FPL's DSM portfolio will be disproportionately impacted because one of the biggest Codes & Standards increases applies to air conditioning in 2015. FPL's Residential Air Conditioning program is a large contributor to the overall DSM portfolio savings, representing approximately 45% of Summer MW and almost 60% of annual GWh overall achievement in 2013. Therefore, the significant increase in mandated air conditioning efficiency in 2015 will significantly reduce overall DSM portfolio achievement for FPL even though the efficiency improvements will continue to provide the same fuel savings, emission reductions and other benefits – the only difference is that FPL's non-participating customers won't have to fund the rebates to get these efficiencies.

Q. Has FPL's DSM portfolio been modified in the past due to changes in market forces?

A. Yes. FPL's DSM portfolio has never been static. Over the decades, programs have been added, removed or modified to adapt to changing FPL resource requirements and market conditions. For example, in 2006 FPL faced increased short-term resource needs and significantly increased its DSM implementation by increasing load management recruitment and adding some new measures. More recently, in 2012, FPL removed its residential air conditioning right-sizing measure because the Florida Building Code had been updated to mandate it.

III. 2014 TECHNICAL POTENTIAL UPDATE
(DSM GOALS DEVELOPMENT STEP 1)

Q. Please define Technical Potential (TP).

A. FEECA requires the Commission to "...evaluate the full technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems." (Section 366.82(3), F.S.) Therefore, a TP analysis is the first in a series of steps in the DSM Goals development process. Its purpose is to identify the theoretical limit to reducing summer and winter electric peak demand and energy. The TP assumes every identified potential end-use measure (or measures) is installed everywhere it is "technically" feasible to do so from an engineering standpoint regardless of cost, customer acceptance, or any other real-world constraints (such as product availability, contractor/vendor capacity, cost-effectiveness, and customer preferences). Therefore, the TP in no way reflects the MW and GWh savings that are achievable through real-world voluntary utility programs.

Q. For 2014, why are FPL and the other FEECA Utilities updating their 2009 TPs rather than conducting new TP evaluations?

A. On June 17, 2013, Commission Staff held an informal meeting with interested parties regarding this proceeding. At that meeting the parties agreed that the FEECA Utilities would perform an update to the 2009 TP rather than a new, full TP. An update was deemed to be reasonable due to the recency of the 2009 TP and the substantially less time and expense required to perform an update versus a full TP. The FEECA Utilities worked jointly to develop the update methodology. FPL's TP update was performed under my direction. It resulted in a thorough and wide-ranging reassessment of conservation and efficiency measures. The update required extensive iterative analytical work and continuous collaboration among the FEECA Utilities to ensure that it was comprehensive.

Q. How were the measures included in the 2014 TP update identified?

A. The starting point was the measures included in the 2009 TP, which was deemed a comprehensive list of unique measures. Various sources were used to develop the list of measures and supporting data, including utility-specific measurement and verification (M&V) data, utility measure research data, the Florida Solar Energy Center, Itron data, the California Database for Energy Efficient Resources (DEER), National Renewable Energy Laboratory (NREL), the Electric Power Research Institute (EPRI), and local equipment distributors for pricing information.

Building on this work, the FEECA Utilities then jointly determined which measures should be eliminated due to the Codes & Standards changes. Next, the FEECA Utilities identified new measures to be added for 2014. As was the case for the 2009 TP, a new measure had to be an existing technology, currently available in the Florida market and for which Florida-specific pricing data was available. Thus, non-commercialized "emerging" technologies were excluded. It should be noted that FPL tracks and evaluates such technologies on an ongoing basis in its Conservation Research and Development program.

The 2014 TP update added 25 measures and eliminated 5 measures. The 2009 TP unique Energy Efficiency (EE) measures that were retained, those eliminated and the new measures added are shown in Exhibit TRK-2. The Demand Response (DR) and Photovoltaic (PV) calculations did not require measure or baseline adjustments. For purposes of the preliminary economic screening performed in the next step, the residential measures were expanded to the three housing types and the business measures were expanded to three respective rate classes, as appropriate. This resulted in 850 individual measures which were then analyzed.

Q. Please describe how the demand and energy reduction values were calculated for the 2014 TP update.

A. Exhibit TRK-3 provides a graphical overview of the methodology, a step-by-step description of all the calculations performed and the relevant associated definitions. All modifications were made to each individual measure's "bottom line" Summer MW, Winter MW and Annual GWh amounts as computed in 2009.

Q. Please summarize the results of the 2014 TP update.

A. The updates to the Summer MW, Winter MW and Annual GWh were performed for EE, DR and PV for both the Residential and Business sectors. It is important to note that the total TP for EE, DR and PV measures partially overlap each other and, therefore, are developed independently and cannot be added together. Exhibit TRK-4 provides the detailed results by market sector for each TP update step. Overall, the results for the 2014 TP were generally somewhat lower than the 2009 TP.

Q. Do you find the overall TP results to be reasonable?

A. Yes. The decrease is not surprising given the Codes & Standards changes and the level of FPL's DSM achievements over the last 30-plus years.

Q. Does the 2014 TP update reflect the full technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems, consistent with FEECA requirements?

A. Yes. The starting point was the 2009 TP, which the Commission previously reviewed and determined to be an adequate assessment of the technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems. (Order No. PSC-09-0855-FOF-EG). Because of the comprehensive, iterative approach taken to updating the 2009 TP, the TP update provides an adequate assessment of the full technical potential of all measures.

IV. ACHIEVABLE POTENTIAL
(DSM GOALS DEVELOPMENT STEP 4)

Q. Please summarize the process that FPL used to move from the TP to DSM Achievable Potential.

A. After the TP was updated, FPL's resource needs during the DSM Goals timeframe were determined and other facets of FPL's resource planning process were then used to conduct an Economic Potential (EP), or cost effectiveness screening of the DSM measures. It should be noted that the EP is a subset of the TP and also is a theoretical derivation as the EP represents the upper bound of potential DSM measure savings determined to be technically feasible and potentially cost-effective but without taking into account important real-world constraints such as product availability, contractor/vendor capacity, stock turnover rates, or customer preferences. Therefore, the EP does not reflect the amount of potential peak demand and energy savings that are likely achievable through voluntary utility programs. As described by FPL witness Sim, measures from the TP are screened under both RIM and TRC cost-effectiveness tests, with the participant test and years-to-payback screening also applied in both instances. 120 measures passed the preliminary economic screening under RIM and 300 passed under TRC. Also as described by FPL witness Sim, FPL conducted certain sensitivity analyses at this stage. Dr. Sim presents the number of measures that passed the various sensitivity screenings in his Exhibit SRS-6. In Exhibit TRK-5, I provide the Summer MW, Winter MW, and annual GWh TP associated with the measures that passed the EP preliminary screening.

Maximum rebates for each measure in the base case RIM and TRC screenings are also determined as part of this analysis. The measures that pass the preliminary screening tests and their maximum rebates are used as an input to the next analysis, the determination of Achievable Potential (AP) under both the RIM and TRC screening tests. The AP determination was performed under my direction.

Q. Please explain the process FPL used to develop its RIM and TRC APs.

A. For each measure that passed the EP preliminary screening under either RIM or TRC, FPL used a combination of quantitative and qualitative information and FPL's market experience to develop the AP. The AP represents the sum of FPL's estimates of Summer MW, Winter MW and Annual GWh for 2015-2024 for each measure. In contrast to the TP and EP values, the AP MW and GWh values represent meaningful "real world" inputs of DSM annual potential that can be used in the rest of FPL's resource planning process. To calculate this, FPL estimates the 10-year customer adoption level, or participation, for each measure.

Voluntary DSM programs recruit participants by providing monetary incentives (rebates) and through marketing, education and training. A customer's decision on whether or not to participate in a given DSM measure is the result of many interrelated factors. Therefore, to assist with the AP estimates, FPL employed a proprietary modeling tool developed by ICF International (ICF), a leading third-party implementer of DSM programs. ICF has used this tool to estimate AP over many years and in numerous other jurisdictions such as Maryland, South Carolina, Georgia, Arkansas, Louisiana, Mississippi, Texas, Wisconsin, and Illinois. FPL employed the modeling tool on a measure-by-measure basis relying on a number of elements that reflect FPL's market experience:

- Participant's years-to-payback (using the maximum rebates);

- Payback Acceptance Curves – provides the percent of customers who should select a measure based on years-to-payback. These curves, provided by ICF, are based on customers' stated preferences from market research;
- Historical adoption rates – provides "baseline" market experience reflecting both the empirical and the non-quantifiable factors (such as customer awareness, etc.);
- Projected changes in market conditions – used to adjust historic adoption for changes, such as lower projected rebates;
- Impacts of the delivery channel (e.g., participating independent contractors, or PICs) – the number of measures that pass the EP and the new maximum rebate levels can influence PICs' desire to participate and, in turn, the extent to which measures are conveniently available to customers .

For currently-offered measures, FPL started by estimating the Year 1 (2015) participation using the factors listed above. For 2016-2024, FPL used a ramp-up (escalation) rate from the 2015 participation value which combined customer growth and incremental further market share penetration. For new measures (i.e., those not included in FPL's current DSM portfolio), the Year 1 (2015) participation was assumed to be zero due the likely timing of final DSM Plan and Program Standards approvals and the time and logistics required to launch and generate customer awareness – all of which will likely take most of 2015 to execute. For 2016-2024, FPL applied a "market diffusion" or "s-curve" from Year 1 until the measure reached its steady state adoption. This type of curve generally has a steeper rate of growth in market penetration than was used for the currently-offered measures, which tend to be on a flatter curve reflecting maturity in the market.

For residential measures, each customer residence represents one participant. For business measures, a "participant" is normalized to 1 Summer kW. Due to the differences between various types of businesses, this normalization facilitates making the calculations on a standardized basis for these measures. The projected adoption values are translated into their respective kW and kWh amounts and then summed to create the AP under both RIM and TRC screening test paths. This AP methodology applied essentially the same approach and considerations as used in prior proceedings.

Q. What are FPL's RIM and TRC APs for 2015-2024?

A. FPL's RIM and TRC APs are shown in Exhibit TRK-6. The RIM and TRC AP Summer MW amounts are quite close. As FPL witness Sim addresses, the impact of DSM on FPL's Summer MW peak load is what matters for resource planning.

Q. Why are the 10-year AP amounts lower than the TP?

A. It should be expected that the AP will be substantially less than the TP. The TP is a theoretical construct that essentially represents 100% market penetration everywhere a measure is assumed to be technically feasible. In contrast, the AP represents the amount of demand and energy savings that are both preliminarily cost-effective and projected to be achievable in the market place over the 10-year Goals period.

The two significant market forces previously discussed have a major impact. Both the increased Codes & Standards and the lower avoided cost benefits substantially reduce the number of screening-passing measures and, very importantly, the size of the maximum rebates when compared to today's levels. These lower rebates restrict adoption in two ways. First, lower rebates lengthen customer paybacks making investing in incremental efficiency less attractive. Second, the programs become less financially desirable to PICs who deliver certain FPL programs, such as Residential Air Conditioning due to the lower total rebate payments. Many air conditioning measures did not pass the screening evaluation, and for those that did the maximum rebate was substantially reduced. As a result, it is possible that many PICs will not find it financially attractive enough to remain in the program. Compounding the projected reduced adoption, the incremental kW and kWh savings per measure are reduced by the increased Codes & Standards efficiency minimums – meaning that each new participant in affected measures will now yield less incremental kW and kWh savings. In sum, FPL's AP is the product of normal market forces which have made it more difficult for utility DSM to compete. Again, this should not be viewed as a negative consequence, but rather a positive result of greater system efficiency (i.e., lower avoided costs) and increased conservation and efficiency of customer usage as a whole.

V. PROPOSED DSM GOALS

Q. Once FPL determined its AP, how were the proposed DSM Goals determined?

A. As discussed by FPL witness Sim, the AP is used as an input to the fifth and sixth steps of the DSM goal development process, in which various resource plans are developed and analyzed to determine the level of DSM Goals that represents an optimal mix of DSM and supply-side measures and thus minimizes the overall electric rates for all customers.

Q. What are FPL's proposed DSM Goals for 2015-2024?

A. FPL's proposed DSM Goals are set forth on Exhibit TRK-7. They result from the robust analytical process, requiring months of analyses and thorough vetting of all assumptions, that FPL witness Sim and I describe. FPL's proposed Goals were developed in compliance with Rule 25-17.0021 and the traditional goal-setting policies that have served FPL's customers well over the years by providing substantial amounts of DSM while keeping all customer's electric rates low. FPL's proposed Summer MW Goal of 337 MW appropriately reflects the amount of cost-effective DSM reasonably achievable over the 10-year planning period and, after accounting for the 20% total reserve margin, is equivalent to avoiding yet another 400 MW power plant, on top of the 14 such plants that FPL's DSM programs have already avoided. Though both annual and cumulative figures are shown, FPL proposes the Commission return to the use of cumulative Goals which had been the case prior to 2009.

Q. Should it be surprising that the 2015-2024 Goals are lower than those established in the past?

A. No. Goals can and will vary, potentially significantly, from one reset period to another. Projected load and resources are subject to change. Setting prospective Goals should not be done based on an arbitrary target (such as previously-established Goals) but instead should be based on the level that the IRP analytics determine, using current forecasts and assumptions, represent the lowest long-term electric rate impacts for FPL's customers. The DSM Goals, whether higher or lower, are not an end in themselves, but instead represent one of the resources available to meet projected needs in the most cost-effective manner possible in order to keep customer bills as low as possible.

Q. What additional MW and GWh savings are projected to result from the increases in Codes & Standards during 2015-2024 Goals period?

A. During the 10-year Goals period, Codes & Standards are projected to reduce the summer system peak by approximately an additional 1,800 MW. FPL's proposed Goals are in addition to these savings. Therefore, FPL's customers will experience a large amount of demand and energy savings from these mandates in addition to the savings resulting from FPL's DSM Goals.

Q. Should the Commission establish additional goals for efficiency improvements in generation, transmission and distribution?

A. No. As a normal part of the planning process, FPL continually looks for opportunities to reduce the cost of providing electrical service to our customers. The potential for supply-side improvements is continually looked at by FPL in its ongoing resource planning analyses. As noted in FPL witness Sim's testimony, the fuel-efficiency of FPL's generating system has dramatically improved: e.g., the heat rate of FPL's fossil fuel generating units has improved by 20% since 2001 and is continuing to improve. Supply-side efficiency and conservation are also analyzed in every need determination for new generation. Rule 25-17.001, F.A.C., supports this stating: ". . . general goals and methods for increasing the overall efficiency of the bulk electric power system of Florida are broadly stated since these methods are an ongoing part of the practice of every well-managed electric utility's programs and shall be continued." The Commission agreed with this position in its 2009 Goals Order. If such additional Goals are desired, they should be discussed in a separate proceeding.

VI. RESULTS OF FPL'S SOLAR PILOTS

Q. What is FPL's position on solar as a renewable energy resource?

A. FPL is a long-time proponent of renewables, including solar. FPL owns and operates 110 MW of solar generation in Florida and has three decades of experience in evaluating, testing and implementing various forms of solar energy applications as discussed in FPL's 2014 Ten Year Site Plan. This experience has demonstrated that there are certain approaches that can be more or less effective in encouraging solar development, and FPL believes that everyone will benefit in the long run from choosing more effective options.

Q. What did the Commission direct the FEECA Utilities to do for demand-side solar in its 2009 Goals decision?

A. During the 2009 Goals proceeding, analyses indicated that no demand-side solar technologies were cost-effective under any of the preliminary screening tests. Therefore, each FEECA utility's AP and proposed Goals excluded solar. However, the Commission in its 2009 decision directed the five investor-owned FEECA Utilities "...to file pilot programs focusing on encouraging solar water heating and solar PV technologies in the DSM program approval proceeding (Solar Pilots). Expenditures allowed for recovery shall be limited to 10 percent of the average annual recovery through the Energy Conservation Cost Recovery clause in the previous five years...." For FPL, this annual expenditure cap is approximately $15.5 million.

Q. Please summarize the demand-side Solar Pilots that FPL has implemented to comply with the Commission's directive.

A. On January 31, 2011, the Commission in its Order No. PSC-11-0079-PAA-EG approved seven Solar Pilots for FPL. There are three solar water heating (SWH) pilots: Residential SWH; Residential SWH (Low Income New Construction); and Business SWH. There are also three photovoltaic (PV) pilots: Residential PV; Business PV; and Business PV for Schools. The seventh program is Renewable Research and Demonstration. The program standards for the Solar Pilots were approved by the Commission Staff on May 13, 2011 and FPL then launched the pilots on June 29, 2011.

From their launch through year-end 2013, there have been a total of about 4,000 installations under FPL's Solar Pilots. All of FPL's customers (through ECCR) have paid a total of about $30 million for the Solar Pilots during this period – an average of approximately $7,500 per installation. The aggregate demand and energy savings as of year-end 2013 are 5.6 Summer MW, 1.6 Winter MW and 20.0 Annual GWh. Based on actual data obtained over the pilot period, all of the Solar Pilots are demonstrably not cost-effective. They do not pass either RIM or TRC; therefore, those rebates are not justifiable from the perspective of FPL's non-participating customers. In fact, as shown on TRK-8, most of the Solar Pilots do not pass the RIM screening test even with the rebate set at zero. Please also see Exhibit TRK-8 for further details on FPL's cost, the all-in system costs, achieved savings and cost-effectiveness for each Solar Pilot.

Q. Please describe FPL's experience and findings with the SWH Pilots.

A. The Residential and Business SWH Pilots are rebate pilots. For Residential SWH, the rebate is $1,000 per system and for Business SWH the rebate is $30 per 1,000 Btu/day depending on system size (up to a max of $50,000 per premise). FPL administers these pilots through its reservation system on a first-come, first-served basis. Under the Residential SWH (Low Income New Construction) Pilot, in order to assist low income customers, FPL pays the full cost of the system through non-profit organizations such as Habitat for Humanity. Since the mid-2011 launch, more than 3,000 SWH systems have been installed through these pilots.

The pilots remain not cost-effective. These results show that not only are the SWH Pilots financially detrimental for the general body of customers, but with the exception of the low-income pilot, the SWH Pilots are not economical for the installing participant either. This is likely one of the reasons that many customers who reserve a rebate and then do their own assessment, do not end up following through to installation. The "completion rate" for Business SWH Pilot is about 40% and Residential SWH Pilot is about 75%. The aggregate demand and energy savings as of year-end 2013 for the SWH Pilots are 0.8 Summer MW, 1.4 Winter MW and 5.1 Annual GWh.

Q. What are FPL's observations regarding SWH pricing?

A. Over the time that the Residential SWH Pilot has been in effect, the invoice price charged to customers by contractors has increased dramatically -- from an average of about $5,700 per unit in 2011 to about $7,200 per unit in 2013. This approximate 25% price increase essentially washes out the value of FPL's rebate. FPL does not know why contractors have increased their cost to customers, but, as FPL stated during the 2009 Goals hearing, this same pricing phenomenon was also observed the last time FPL offered such a program back in the 1980s. The fact that it has happened again demonstrates the unintended consequences that can result from rebates. The installed cost for residential customers would have to decrease by at least 60% to pass cost-effectiveness under the Participant test – and no utility rebate could be justified because residential SWH fails the RIM screening test even with a rebate of zero.

Q. Please describe FPL's experience and findings with the PV Pilots.

A. The Residential and Business PV Pilots are also rebate pilots which FPL operates in essentially the same manner as the SWH rebate pilots. For Residential PV, the rebate is $2.00/watt$_{dc}$ (with a max of $20,000 per premise) and for Business PV the rebate is on a declining scale from $2.00 to $1.00/watt$_{dc}$ depending on system size (with a max of $50,000 per premise). The Business PV for Schools Pilot is designed to provide educational materials and training to participating schools in conjunction with a PV system and associated infrastructure. Ultimately, one or more systems will be installed at schools in 23 of the 28 school districts served by FPL. Unlike the Residential and Business PV Pilots, FPL pays the full cost of the systems that are installed at participating schools and retains ownership for the first five years, at which point the systems are donated to the schools. Since the mid-2011 launch, more than 950 systems have been installed through the PV Pilots.

These pilots are not cost-effective. Despite the poor participant economics, all reservations for the Residential and Business PV Pilots fill very rapidly. However, like

SWH, actual completion rates show substantial drop outs with only about 50% of business and about 75% of residential customers actually installing systems. Additionally, measurement and verification (M&V) has been completed on residential PV showing that actual Summer kW and annual kWh savings were lower than originally estimated. M&V Summer kW was 0.34 v. FPL's original estimate of 0.42 and annual kWh was 1,114 v. FPL's original estimate of 1,330 – reductions of about 20% and 15%, respectively. The aggregate demand and energy savings as of year-end 2013 are 4.8 Summer MW, 0.1 Winter MW and 14.9 Annual GWh.

Q. What are FPL's observations regarding PV pricing?

A. Over the course of the pilots, the average contractor invoice for residential PV's price per kW_{dc} has declined from about $5,400 in 2011 to $4,100 in 2013. This approximate 25% price decline within FPL's service territory is consistent with the nation-wide trend widely reported by the media and attributed to factors such as low-priced foreign-made panels. For example, the Solar Energy Industries Association (SEIA) reported a 25% reduction in residential PV installed prices from the 3rd quarter 2011 through year-end 2013. It does not appear that FPL's rebates had any significant influence. In addition, cost reductions have a long way to go. Based on the Participant screening test, the installed costs for residential PV would have to fall more than 50% from today's average to pass – and no meaningful utility rebate could be justified because residential PV is essentially breakeven under the RIM screening test with a rebate of zero.

Q. Please describe the Renewable Research and Demonstration Pilot.

A. This pilot is designed to provide education and raise public awareness of solar technologies through installation of demonstration PV systems in high-visibility areas and to conduct research on emerging renewable technologies to fully understand and quantify their potential energy savings performance and applications. FPL has installed demonstration projects in places such as: the Museum of Discovery and Science in Fort Lauderdale; the Kennedy Space Center Visitor Center in Cape Canaveral; and the Imaginarium Science Museum in Fort Myers. FPL has also conducted research on renewables under this pilot, such as PV-powered pool pumps.

Q. At this point, have the Solar Pilots served their purpose?

A. Yes. Because the largest hurdle faced by demand-side solar was financial, the following represents a reasonable and comprehensive set of issues to test with these pilots. First, could SWH or PV become cost-effective? Second, would there be any market changes such as lower incremental customer cost and, most importantly, could this change be directly attributed to an FPL pilot? Third, would the demand and energy savings be better than assumed? Positive results for one or more of these objectives for a pilot might indicate that the measure could become financially viable.

As described in the preceding Solar Pilots' summaries, the findings were the opposite. Current analysis results have validated 2009 projections. Demand-side SWH and PV remain decidedly <u>non</u>-cost-effective by large margins for non-participants and the participants regardless of the preliminary cost-effectiveness screening test used. FPL did not discern any significant improvements in either the availability or price of solar technologies for customers as a result of the Solar Pilots, and in one case the pricing actually got noticeably worse to the detriment of the participants. The one cost reduction that was seen could not be attributed to FPL's Pilots.

Q. What is your conclusion with regard to the Solar Pilots?

A. The Solar Pilots have run for sufficient time to fully understand their performance and results, and they are scheduled to expire at the end of 2014. The performance and results show that these types of pilots are clearly not cost-effective and do not appear to be an efficient and equitable way to encourage demand-side solar development. Indeed, the lack of cost-effectiveness of these pilots unfairly places higher rate impacts on non-participating customers, many of whom do not have the resources or any practical incentive to incur the substantial financial outlay to participate in the pilot programs. Accordingly, it is incumbent upon proponents of such programs to furnish very compelling reasons and data for why the pilots ought to be extended or converted into full DSM programs, rather than simply being allowed to expire.

Q. Does FPL intend to pursue alternative programs to promote solar?

A. Yes. FPL is exploring other programs that could promote solar efficiently and without cross-subsidies among customers. For example, FPL is filing in a separate docket a proposed voluntary, community-based solar partnership pilot program. That pilot program will provide an efficient way for customers to support solar that: (1) is not restricted to customers who can install solar facilities on their own property; and (2) does not rely upon subsidies from non-participating customers.

Q. Does this conclude your direct testimony?

A. Yes.

FPL's DSM National Performance Rankings[1]

Cumulative DSM MW		
1	Southern California Edison Co	5,681
2	**Florida Power & Light Co**	**4,244**
3	Pacific Gas & Electric Co	2,808
4	Northern States Power Co - Minnesota	2,225
5	Duke Energy Florida, Inc	1,925
6	Alabama Power Co	1,743
7	Commonwealth Edison Co	1,431
8	Public Service Co of Colorado	1,066
9	Progress Energy Carolinas Inc (NC)	1,023
10	Tampa Electric Co	843

Cumulative Load Management MW		
1	Southern California Edison Co	2,864
2	**Florida Power & Light Co**	**1,714**
3	Alabama Power Co	1,250
4	Commonwealth Edison Co	1,146
5	Duke Energy Florida, Inc	997
6	Northern States Power Co - Minnesota	747
7	Baltimore Gas & Electric Co	548
8	Duke Energy Carolinas (NC)	521
9	Progress Energy Carolinas Inc (NC)	474
10	Idaho Power Co	438

Cumulative Energy Efficiency MW		
1	Southern California Edison Co	2,817
2	Pacific Gas & Electric Co	2,808
3	**Florida Power & Light Co**	**2,530**
4	Northern States Power Co - Minnesota	1,478
5	Duke Energy Florida, Inc	928
6	Oncor Electric Delivery Company LLC	714
7	Public Service Co of Colorado	656
8	Tampa Electric Co	553
9	Progress Energy Carolinas Inc (NC)	549
10	Connecticut Light & Power Co	516

Cumulative Energy Efficiency GWh		
1	Pacific Gas & Electric Co	14,918
2	Southern California Edison Co	14,593
3	Northern States Power Co - Minnesota	6,236
4	**Florida Power & Light Co**	**3,979**
5	Connecticut Light & Power Co	2,997
6	Massachusetts Electric Co	2,841
7	San Diego Gas & Electric Co	2,512
8	Oncor Electric Delivery Company LLC	2,301
9	Puget Sound Energy Inc	2,297
10	Arizona Public Service Co	2,246

FPL as Percent of Industry			
	FPL	**Industry**	**% of Industry**
Peak MW	21,440	1,038,034	2%
Total DSM MW	4,244	57,427	7%
Energy Efficiency MW	2,530	28,924	9%
Load Management MW	1,714	28,503	6%

[1] DOE/EIA 2013 Report. 2012 data for Investor-Owned Utilities with at least 3,000 MW summer peak demand. All values are at the meter, with the exception of Peak MW.

2014 Technical Potential Energy Efficiency Measures – Residential

No.	Measure Name
Measures Included in 2009 Technical Potential	
102	15 SEER Split-System Air Conditioner
103	17 SEER Split-System Air Conditioner
104	19 SEER Split-System Air Conditioner
105	14 SEER Split-System Heat Pump
106	15 SEER Split-System Heat Pump
107	17 SEER Split-System Heat Pump
111	Sealed Attic w/Sprayed Foam Insulated Roof Deck
112	AC Maintenance (Outdoor Coil Cleaning)
113	AC Maintenance (Indoor Coil Cleaning)
114	Proper Refrigerant Charging and Air Flow
115	Electronically Commutated Motors (ECM) on an Air Handler Unit
116	Duct Repair
117	Reflective Roof
118	Radiant Barrier
119	Window Film
120	Window Tinting
121	Default Window With Sunscreen
122	Single Pane Clear Windows to Double Pane Low-E Windows
124	Ceiling R-0 to R-19 Insulation
125	Ceiling R-19 to R-38 Insulation
126	Wall 2x4 R-0 to Blow-In R-13 Insulation
127	Weather Strip/Caulk w/Blower Door
191	HE Room Air Conditioner - EER 11
192	HE Room Air Conditioner - EER 12
221	CFL (18-Watt integral ballast)
251	2L4'T8, 1EB
301	HE Refrigerator - Energy Star version of above
351	HE Freezer
401	Heat Pump Water Heater (EF=2.9)
403	Solar Water Heater
404	AC Heat Recovery Units
405	Low Flow Showerhead
406	Pipe Wrap
407	Faucet Aerators
408	Water Heater Blanket
409	Water Heater Temperature Check and Adjustment
410	Water Heater Timeclock
411	Heat Trap
502	Energy Star CW CEE Tier 2 (MEF=2.0)
503	Energy Star CW CEE Tier 3 (MEF=2.2)
701	Energy Star DW (EF=0.68)
801	Two Speed Pool Pump (1.5 hp)
802	High Efficiency One Speed Pool Pump (1.5 hp)
803	Variable-Speed Pool Pump (<1 hp)
804	PV-Powered Pool Pumps
901	Energy Star TV
921	Energy Star Set-Top Box
931	Energy Star DVD Player
941	Energy Star VCR
951	Energy Star Desktop PC
961	Energy Star Laptop PC

No.	Measure Name
New Measures	
222	LED (12-Watt)
263	LED Directional 13W (Flood, Outdoor)
302	Refrigerator recycling
352	Freezer recycling
962	Smart Plug

Eliminated Measures	
101	14 SEER Split-System Air Conditioner
109	HVAC Proper Sizing
131	14 SEER Split-System Heat Pump
610	High Efficiency CD (EF=3.01 w/moisture sensor)

2014 Technical Potential Energy Efficiency Measures – Commercial

No.	Measure Name
Measures Included in 2009 Technical Potential	
111	Premium T8, Electronic Ballast
112	Premium T8, EB, Reflector
113	Occupancy Sensor
114	Continuous Dimming
115	Lighting Control Tune-up
131	CFL Screw-in 18W
141	CFL Hardwired, Modular 18W
151	PSMH, 250W, magnetic ballast
153	High Bay T5
161	LED Exit Sign
201	High Pressure Sodium 250W Lamp
202	Outdoor Lighting Controls (Photocell/Timeclock)
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons
302	High Efficiency Chiller Motors
304	EMS - Chiller
305	Chiller Tune Up/Diagnostics
306	VSD for Chiller Pumps and Towers
307	EMS Optimization
308	Aerosol Duct Sealing
309	Duct/Pipe Insulation
311	Window Film (Standard)
313	Ceiling Insulation
314	Roof Insulation
315	Cool Roof
317	Thermal Energy Storage (TES)
321	DX Packaged System, EER=11.9, 10 tons
322	Hybrid Desiccant-DX System (Trane CDQ)
323	Geothermal Heat Pump, EER=13, 10 tons
326	DX Tune Up/ Advanced Diagnostics
327	DX Coil Cleaning
328	Optimize Controls
341	Packaged HP System, EER=11.7, 10 tons
361	HE PTAC, EER=9.6, 1 ton
362	Occupancy Sensor (hotels)
401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
402	Variable Speed Drive Control
403	Air Handler Optimization
404	Electronically Commutated Motors (ECM) on an Air Handler Unit
405	Demand Control Ventilation (DCV)
406	Energy Recovery Ventilation (ERV)
407	Separate Makeup Air / Exhaust Hoods AC
501	High-efficiency fan motors
502	Strip curtains for walk-ins
503	Night covers for display cases
504	Evaporator fan controller for MT walk-ins
505	Efficient compressor motor
506	Compressor VSD retrofit
507	Floating head pressure controls

No.	Measure Name
Measures Included in 2009 Technical Potential (cont'd)	
508	Refrigeration Commissioning
509	Demand Hot Gas Defrost
510	Demand Defrost Electric
511	Anti-sweat (humidistat) controls
513	High R-Value Glass Doors
514	Multiplex Compressor System
515	Oversized Air Cooled Condenser
516	Freezer-Cooler Replacement Gaskets
517	LED Display Lighting
603	Heat Pump Water Heater (air source)
604	Solar Water Heater
606	Demand controlled circulating systems
608	Heat Recovery Unit
609	Heat Trap
610	Hot Water Pipe Insulation
701	PC Manual Power Management Enabling
702	PC Network Power Management Enabling
711	Energy Star or Better Monitor
712	Monitor Power Management Enabling
731	Energy Star or Better Copier
732	Copier Power Management Enabling
741	Printer Power Management Enabling
801	Convection Oven
811	Efficient Fryer
901	Vending Misers (cooled machines only)

New Measures	
125	LED Linear Tube 22W
132	Flood LED 14W
146	LED (12-Watt)
154	Outdoor LED 104W
203	LED High Bay 83W (400W equivalent)
337	Run Time Optimizer
338	Dehumidification hybrid desiccant heat pump
518	Ice Machine
611	0.5 Faucet Aerator (DI) - Commercial
612	1.0 gpm Faucet Aerator (DI) -Commercial
613	1.5 gpm Low Flow Showerhead (DI) - Commercial
703	Server Virtualization
812	Griddle
813	Steamer
814	Holding Cabinet

Eliminated Measures	
601	High Efficiency Water Heater (electric)

2014 Technical Potential Energy Efficiency Measures – Industrial

No.	Measure Name
Measures Included in 2009 Technical Potential	
101	Compressed Air-O&M
102	Compressed Air - Controls
103	Compressed Air - System Optimization
104	Compressed Air- Sizing
105	Comp Air - Replace 1-5 HP motor
106	Comp Air - ASD (1-5 hp)
107	Comp Air - Motor practices (1-5 HP)
108	Comp Air - Replace 6-100 HP motor
109	Comp Air - ASD (6-100 hp)
110	Comp Air - Motor practices (6-100 HP)
111	Comp Air - Replace 100+ HP motor
112	Comp Air - ASD (100+ hp)
113	Comp Air - Motor practices (100+ HP)
114	Power recovery
115	Refinery Controls
201	Fans - O&M
202	Fans - Controls
203	Fans - System Optimization
204	Fans- Improve components
205	Fans - Replace 1-5 HP motor
206	Fans - ASD (1-5 hp)
207	Fans - Motor practices (1-5 HP)
208	Fans - Replace 6-100 HP motor
209	Fans - ASD (6-100 hp)
210	Fans - Motor practices (6-100 HP)
211	Fans - Replace 100+ HP motor
212	Fans - ASD (100+ hp)
213	Fans - Motor practices (100+ HP)
214	Optimize drying process
301	Pumps - O&M
302	Pumps - Controls
303	Pumps - System Optimization
304	Pumps - Sizing
305	Pumps - Replace 1-5 HP motor
306	Pumps - ASD (1-5 hp)
307	Pumps - Motor practices (1-5 HP)
308	Pumps - Replace 6-100 HP motor
309	Pumps - ASD (6-100 hp)
310	Pumps - Motor practices (6-100 HP)
311	Pumps - Replace 100+ HP motor
312	Pumps - ASD (100+ hp)
313	Pumps - Motor practices (100+ HP)
401	Bakery - Process (Mixing) - O&M
402	O&M/drives spinning machines
403	Air conveying systems
404	Replace V-Belts
405	Drives - EE motor
406	Gap Forming paper machine
407	High Consistency forming
408	Optimization control PM
409	Efficient practices printing press
410	Efficient Printing press (fewer cylinders)
411	Light cylinders
412	Efficient drives
413	Clean Room - Controls
414	Clean Room - New Designs
415	Drives - Process Controls (batch + site)
416	Process Drives - ASD
417	O&M - Extruders/Injection Molding
418	Extruders/Injection Moulding - multipump
419	Direct drive Extruders

No.	Measure Name
Measures Included in 2009 Technical Potential (cont'd)	
420	Injection Molding - Impulse Cooling
421	Injection Molding - Direct drive
422	Efficient grinding
423	Process control
424	Process optimization
425	Drives - Process Control
426	Efficient drives - rolling
427	Drives - Optimization process (M&T)
428	Drives - Scheduling
429	Machinery
430	Efficient Machinery
501	Bakery - Process
502	Drying (UV/IR)
503	Heat Pumps - Drying
504	Top-heating (glass)
505	Efficient electric melting
506	Intelligent extruder (DOE)
507	Near Net Shape Casting
508	Heating - Process Control
509	Efficient Curing ovens
510	Heating - Optimization process (M&T)
511	Heating - Scheduling
551	Efficient Refrigeration - Operations
552	Optimization Refrigeration
601	Other Process Controls (batch + site)
602	Efficient desalter
603	New transformers welding
604	Efficient processes (welding, etc.)
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons
702	High Efficiency Chiller Motors
703	EMS - Chiller
704	Chiller Tune Up/Diagnostics
705	VSD for Chiller Pumps and Towers
706	EMS Optimization - Chiller
707	Aerosol Duct Sealing
708	Duct/Pipe Insulation
709	Window Film
710	Roof Insulation
711	Cool Roof
721	DX Packaged System, EER=11.9, 10 tons
722	Hybrid Desiccant-DX System (Trane CDQ)
723	Geothermal Heat Pump, EER=13, 10 tons
724	DX Tune Up/ Advanced Diagnostics
725	DX Coil Cleaning
726	Optimize Controls
801	Premium T8, Electronic Ballast
802	CFL Hardwired, Modular 18W
803	CFL Screw-in 18W
804	High Bay T5
805	Occupancy Sensor
902	Membranes for wastewater

New Measures	
732	Run Time Optimizer
733	Dehumidification Hybrid Desiccant Heat Pump (5 Ton)
806	LED Linear Tube 22W
807	Flood LED 14W
808	LED High Bay 83W

Eliminated Measures	
	None

2014 Technical Potential Update Methodology

Definitions

- **Technical Potential (TP)** – An analysis performed in the DSM Goals development process to identify the theoretical limit of electric peak demand (MW) and energy (GWh) reductions. The TP assumes every measure is installed everywhere it could be physically 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 Dependent 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).
    - **Complimentary Measure** – A Dependent 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).

2014 Technical Potential Update Methodology (cont'd)

Updating the Energy Efficiency (EE) measures included all steps. Only step 3 was performed for Demand Response (DR) and Photovoltaic (PV) measures because 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 to reflect Codes & Standards changes

↓

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 year-end 2007 (2009 TP last actuals) through 2012
- Reduced overall demand and energy potential to reflect the impact the utility's DSM program achievements from year-end 2007-2012

↓

2014 Technical Potential

2014 Technical Potential Update Methodology (cont'd)

1. Adjusted Existing Energy Efficiency (EE) Measures

a. Removed Obsolete Baseline Measures

1. Identified each 2009 TP Baseline Measure affected by new Codes & Standards (e.g., 13 SEER straight-cool air conditioner was replaced in 2015).
2. Identified the new Baseline Measures replacing the obsolete ones (e.g., 14 SEER air conditioner).
3. Determined each new Baseline Measure's kW and kWh impact values.
4. Zeroed out each new Baseline Measure's impact values because no incremental potential is attributable to any measure required by Codes & Standards.

b. Reduced Associated Dependent Measures' Impacts

1. Calculated the incremental difference in the energy impacts between the associated Dependent Measures and the new Baseline Measures.
2. Calculated the incremental difference between associated Dependent Measures and their 2009 TP Baseline Measure.
3. Calculated the Adjustment Factor for each by dividing the values from Step 1 by the values from Step 2.
4. Multiplied the affected Dependent Measures' 2009 TP total energy impacts by their Adjustment Factors.

2. Added New Energy Efficiency Measures

a. Competing Measures

1. Identified the appropriate Baseline Measures.
2. Identified existing Dependent Measures associated to these Baseline Measures.
3. Calculated the available incremental demand/energy impacts remaining for the New Measure (Baseline Measure impact less the sum of the impacts from the existing Dependent Measures).
4. Calculated the incremental percentage of demand/energy impacts for each New Competing Measure from the associated Baseline Measure.
5. Multiplied the values from Step 3 by the values from Step 4.

b. Complimentary Measures

1. Same as Competing Measures Step 1.
2. Same as Competing Measures Step 2.
3. Same as Competing Measures Step 3.
4. Calculated the maximum percentage of demand/energy impacts for each new Complimentary Measure from the associated Baseline Measure.
5. Same as Competing Measures Step 5.

3. Adjusted for Marketplace Changes

a. Overall Market Growth

1. Calculated 5-year overall customer growth percentage from year-end 2007 (actuals which were used as basis for 2009 TP) through 2012 based on values reported in the 2013 Ten-Year Site Plan.
2. Multiplied the total overall demand/energy impacts by the value from Step 1.
3. Added the values from Step 2 to the total overall demand/energy impacts.

b. Program Achievements – EE

1. Calculated 5-year (2008-2012) demand/energy DSM program achievements as reported in the utilities' Annual Reports.
2. Subtracted the values from Step 1 from the total overall demand/energy impacts.

2014 Technical Potential Update Methodology (cont'd)

3. Adjusted for Marketplace Changes (cont'd)

c. Program Achievements – Demand Response (DR)

1. Calculated 5-year (2008-2012) demand/energy DSM program achievements as reported in the DSM Annual Reports.
2. Subtracted the values from Step 1 from the 2009 TP total overall demand/energy impacts for DR.

d. Program Achievements – Photovoltaic (PV)

1. Calculated 5-year (2008-2012) demand/energy values as reported in the Net Metering Reports, whether or not the installations were part of the utility's Solar Pilots.
2. Subtracted the values from Step 1 from the 2009 TP total overall demand/energy impacts for PV.

2014 Technical Potential Results Summary

Energy Efficiency (EE)

	Summer MW			Winter MW			Annual GWh		
	Residential	Business	Total	Residential	Business	Total	Residential	Business	Total
2009 Technical Potential	5,713	2,287	8,000	3,486	1,298	4,784	20,245	11,604	31,849
2014 Updates									
1. Codes & Standards	(830)	(256)	**(1,086)**	(444)	(132)	**(575)**	(2,878)	(1,305)	**(4,183)**
2. New Measures	182	349	**531**	178	125	**303**	1,825	2,351	**4,177**
Subtotal	**5,066**	**2,380**	**7,446**	**3,221**	**1,291**	**4,512**	**19,192**	**12,650**	**31,842**
3. Marketplace Changes									
a. Growth	91	43	**134**	58	23	**81**	345	228	**573**
b. Achievement	(308)	(126)	**(434)**	(136)	(47)	**(183)**	(623)	(325)	**(947)**
Subtotal - Marketplace Changes	**(217)**	**(83)**	**(300)**	**(78)**	**(24)**	**(102)**	**(277)**	**(97)**	**(374)**
2014 Updated Technical Potential	4,849	2,297	7,146	3,143	1,267	4,410	18,915	12,553	31,468

Demand Response (DR)

	Summer MW			Winter MW		
	Residential	Business	Total	Residential	Business	Total
2009 Technical Potential (High Case)	1,367	845	2,212	2,153	350	2,503
2014 Updates						
3. Marketplace Changes						
a. Growth	25	15	**40**	39	6	**45**
b. Achievement	(75)	(111)	**(186)**	(10)	(145)	**(155)**
Subtotal - Marketplace Changes	**(50)**	**(96)**	**(146)**	**29**	**(139)**	**(110)**
2014 Updated Technical Potential	1,317	749	2,066	2,182	211	2,393

Photovoltaic (PV)

	Summer MW			Winter MW			Annual GWh		
	Residential	Business	Total	Residential	Business	Total	Residential	Business	Total
2009 Technical Potential	8,703	5,112	13,815	1,585	649	2,234	23,982	13,506	37,488
2014 Updates									
3. Marketplace Changes									
a. Growth	157	92	**249**	29	12	**40**	432	243	**675**
b. Achievement	(4)	(5)	**(9)**	(0)	(0)	**(0)**	(13)	(14)	**(27)**
Subtotal - Marketplace Changes	**153**	**87**	**240**	**28**	**12**	**40**	**419**	**229**	**648**
2014 Updated Technical Potential	8,856	5,199	14,055	1,613	661	2,274	24,401	13,735	38,136

Technical Potential for Economic Screening Sensitivities

			Number of DSM Measures		Summer MW		Winter MW		Annual GWh	
Case	Fuel Forecast	Years -to-Payback Test	Surviving RIM Path Screening	Surviving TRC Path Screening	Surviving RIM Path Screening	Surviving TRC Path Screening	Surviving RIM Path Screening	Surviving TRC Path Screening	Surviving RIM Path Screening	Surviving TRC Path Screening
Base Case										
Without CO_2	Medium	2	120	300	1,675	2,295	1,258	1,384	5,328	8,753
With CO_2	Medium	2	124	301	1,550	2,155	1,193	1,401	4,775	8,582
Sensitivities										
Case 1	High	2	231	290	1,864	2,267	1,312	1,367	6,461	8,545
Case 2	Low	2	62	274	1,428	2,422	1,078	1,365	3,567	8,770
Case 3	Medium	1	140	393	1,952	2,913	1,295	1,651	6,306	12,192
Case 4	Medium	3	67	193	1,139	1,400	1,058	1,091	3,280	4,820
Case 5	High	1	293	391	2,184	2,891	1,414	1,651	7,928	12,082
Case 6	High	3	151	187	1,315	1,399	1,108	1,088	4,316	4,806
Case 7	Low	1	63	371	1,429	2,716	1,079	1,622	3,573	11,206
Case 8	Low	3	43	169	1,006	1,362	1,033	1,085	2,636	4,578

2015-2024 Achievable Potential – RIM[2]

	FPL Achievable Potential - Combined (RIM)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	48.1	**48.1**	29.2	**29.2**	41.1	**41.1**
2016	49.6	**97.7**	30.0	**59.2**	45.6	**86.7**
2017	50.8	**148.5**	30.9	**90.1**	47.5	**134.2**
2018	51.6	**200.1**	31.5	**121.6**	49.5	**183.7**
2019	52.3	**252.4**	32.1	**153.7**	51.5	**235.3**
2020	53.1	**305.5**	32.7	**186.5**	53.6	**288.9**
2021	53.9	**359.3**	33.4	**219.9**	55.8	**344.7**
2022	54.7	**414.1**	34.1	**253.9**	58.1	**402.8**
2023	55.6	**469.6**	34.8	**288.7**	60.5	**463.3**
2024	56.5	**526.1**	35.5	**324.2**	62.9	**526.3**

	FPL Achievable Potential - Residential (RIM)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	25.3	**25.3**	15.6	**15.6**	21.6	**21.6**
2016	25.6	**50.9**	15.8	**31.3**	22.2	**43.7**
2017	25.9	**76.8**	16.0	**47.3**	22.8	**66.6**
2018	26.2	**103.0**	16.2	**63.5**	23.5	**90.1**
2019	26.5	**129.5**	16.4	**79.9**	24.2	**114.3**
2020	26.9	**156.4**	16.7	**96.6**	25.0	**139.2**
2021	27.3	**183.7**	16.9	**113.5**	25.7	**165.0**
2022	27.6	**211.3**	17.2	**130.7**	26.5	**191.5**
2023	28.0	**239.4**	17.5	**148.2**	27.4	**218.9**
2024	28.5	**267.8**	17.8	**166.0**	28.3	**247.2**

	FPL Achievable Potential - Business (RIM)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	22.8	**22.8**	13.6	**13.6**	19.6	**19.6**
2016	24.0	**46.8**	14.3	**27.9**	23.4	**43.0**
2017	24.9	**71.8**	14.9	**42.8**	24.7	**67.7**
2018	25.3	**97.1**	15.3	**58.1**	26.0	**93.7**
2019	25.8	**122.9**	15.7	**73.8**	27.3	**121.0**
2020	26.2	**149.0**	16.1	**89.9**	28.7	**149.7**
2021	26.6	**175.7**	16.5	**106.4**	30.1	**179.8**
2022	27.1	**202.7**	16.9	**123.2**	31.6	**211.3**
2023	27.5	**230.3**	17.3	**140.5**	33.1	**244.4**
2024	28.0	**258.3**	17.7	**158.2**	34.7	**279.1**

[2] Values are at the Generator

2015-2024 Achievable Potential – TRC[3]

	FPL Achievable Potential - Combined (TRC)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	47.4	**47.4**	38.1	**38.1**	64.0	**64.0**
2016	52.2	**99.7**	41.4	**79.5**	87.2	**151.2**
2017	54.2	**153.8**	43.1	**122.6**	93.4	**244.7**
2018	55.6	**209.4**	44.5	**167.2**	99.9	**344.6**
2019	57.1	**266.5**	46.0	**213.2**	106.7	**451.3**
2020	58.6	**325.2**	47.6	**260.8**	113.7	**565.0**
2021	60.2	**385.4**	49.3	**310.1**	121.0	**685.9**
2022	61.9	**447.3**	51.0	**361.1**	128.5	**814.4**
2023	63.6	**510.9**	52.7	**413.8**	136.4	**950.9**
2024	65.5	**576.4**	54.6	**468.4**	144.7	**1,095.6**

	FPL Achievable Potential - Residential (TRC)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	17.5	**17.5**	16.6	**16.6**	6.3	**6.3**
2016	20.0	**37.5**	18.4	**35.0**	17.2	**23.5**
2017	20.5	**58.0**	18.9	**53.8**	18.9	**42.5**
2018	21.1	**79.1**	19.4	**73.2**	20.8	**63.3**
2019	21.7	**100.8**	20.0	**93.2**	22.9	**86.3**
2020	22.3	**123.1**	20.6	**113.8**	25.2	**111.5**
2021	23.0	**146.1**	21.3	**135.1**	27.7	**139.2**
2022	23.8	**170.0**	22.1	**157.2**	30.5	**169.7**
2023	24.7	**194.6**	22.9	**180.1**	33.5	**203.1**
2024	25.6	**220.2**	23.7	**203.8**	36.7	**239.8**

	FPL Achievable Potential - Business (TRC)					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	29.9	**29.9**	21.4	**21.4**	57.7	**57.7**
2016	32.2	**62.1**	23.1	**44.5**	70.0	**127.7**
2017	33.7	**95.8**	24.3	**68.8**	74.5	**202.2**
2018	34.5	**130.3**	25.2	**94.0**	79.1	**281.3**
2019	35.4	**165.8**	26.1	**120.0**	83.7	**365.0**
2020	36.3	**202.1**	27.0	**147.0**	88.5	**453.5**
2021	37.2	**239.3**	27.9	**175.0**	93.2	**546.7**
2022	38.1	**277.3**	28.9	**203.9**	98.1	**644.7**
2023	39.0	**316.3**	29.9	**233.7**	103.0	**747.7**
2024	39.9	**356.1**	30.8	**264.6**	108.0	**855.8**

[3] Values are at the Generator

2015-2024 Proposed Goals[4]

	FPL Proposed Goals - Combined					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	26.2	**26.2**	16.3	**16.3**	2.4	**2.4**
2016	29.7	**55.9**	18.2	**34.5**	2.7	**5.1**
2017	31.2	**87.1**	18.7	**53.3**	3.2	**8.3**
2018	32.5	**119.7**	19.0	**72.3**	3.7	**12.0**
2019	34.4	**154.0**	19.4	**91.7**	4.2	**16.1**
2020	34.9	**188.9**	19.4	**111.1**	5.3	**21.5**
2021	35.6	**224.5**	19.5	**130.6**	6.7	**28.1**
2022	36.4	**260.9**	19.5	**150.1**	8.3	**36.5**
2023	37.3	**298.2**	19.5	**169.6**	10.2	**46.7**
2024	38.5	**336.7**	19.5	**189.1**	12.5	**59.2**

	FPL Proposed Goals - Residential					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	15.7	**15.7**	12.3	**12.3**	1.8	**1.8**
2016	15.9	**31.6**	12.3	**24.6**	2.2	**3.9**
2017	16.2	**47.8**	12.3	**36.9**	2.7	**6.6**
2018	16.5	**64.3**	12.3	**49.1**	3.3	**9.9**
2019	16.9	**81.2**	12.3	**61.4**	4.1	**14.0**
2020	17.4	**98.6**	12.3	**73.7**	5.0	**19.0**
2021	18.0	**116.6**	12.3	**86.0**	6.2	**25.2**
2022	18.7	**135.4**	12.3	**98.3**	7.7	**32.8**
2023	19.7	**155.0**	12.3	**110.6**	9.5	**42.3**
2024	20.8	**175.8**	12.3	**122.8**	11.7	**54.0**

	FPL Proposed Goals - Business					
	Summer MW		Winter MW		Annual GWh	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	10.5	**10.5**	4.1	**4.1**	0.6	**0.6**
2016	13.8	**24.3**	5.9	**10.0**	0.6	**1.2**
2017	15.0	**39.3**	6.4	**16.4**	0.5	**1.7**
2018	16.0	**55.3**	6.7	**23.1**	0.4	**2.1**
2019	17.5	**72.8**	7.1	**30.2**	0.1	**2.2**
2020	17.5	**90.3**	7.1	**37.4**	0.3	**2.5**
2021	17.6	**107.9**	7.2	**44.6**	0.5	**2.9**
2022	17.6	**125.5**	7.2	**51.8**	0.7	**3.6**
2023	17.7	**143.2**	7.2	**59.0**	0.8	**4.4**
2024	17.7	**160.9**	7.2	**66.2**	0.8	**5.2**

[4] Values are at the Generator

Solar Pilots Results – Costs[5] & Achievements

2011

Pilot	FPL Cost
Solar Water Heating (SWH)	
Residential	$575,845
Residential - Low Income New Construction	$11,169
Business	$111,022
Photovoltaic (PV)	
Residential	$3,217,910
Business	$960,138
Business PV for Schools	$3,500
Research & Demonstration	$23,285
Non-Program Specific (e.g., systems, etc.)	$2,375,929
TOTAL	$7,278,799

Pilot	Summer MW	Winter MW	Annual GWh
Solar Water Heating (SWH)			
Residential	0.1	0.3	0.8
Residential - LINC	0.0	0.0	0.0
Business	0.1	0.0	0.2
Photovoltaic (PV)			
Residential	0.8	0.0	2.5
Business	0.3	0.0	0.8
Business PV for Schools	0.0	0.0	0.0
TOTAL	1.3	0.3	4.4

2012

Pilot	FPL Cost
Solar Water Heating (SWH)	
Residential	$1,580,152
Residential - Low Income New Construction	$429,673
Business	$392,078
Photovoltaic (PV)	
Residential	$3,415,009
Business	$2,579,369
Business PV for Schools	$857,303
Research & Demonstration	$537,874
Non-Program Specific (e.g., systems, etc.)	$548,685
TOTAL	$10,340,142

Pilot	Summer MW	Winter MW	Annual GWh
Solar Water Heating (SWH)			
Residential	0.3	0.6	1.8
Residential - LINC	0.0	0.1	0.2
Business	0.1	0.0	0.2
Photovoltaic (PV)			
Residential	0.8	0.0	2.4
Business	0.7	0.0	2.2
Business PV for Schools	0.0	0.0	0.0
TOTAL	1.8	0.7	6.7

2013

Pilot	FPL Cost
Solar Water Heating (SWH)	
Residential	$1,392,853
Residential - Low Income New Construction	$480,153
Business	$126,308
Photovoltaic (PV)	
Residential	$4,412,975
Business	$1,948,955
Business PV for Schools	$3,197,165
Research & Demonstration	$597,682
Non-Program Specific (e.g., systems, etc.)	$78,483
TOTAL	$12,234,572

Pilot	Summer MW	Winter MW	Annual GWh
Solar Water Heating (SWH)			
Residential	0.3	0.5	1.7
Residential - LINC	0.0	0.1	0.2
Business	0.0	0.0	0.0
Photovoltaic (PV)			
Residential	1.0	0.0	3.2
Business	1.2	0.0	3.6
Business PV for Schools	0.1	0.0	0.3
TOTAL	2.6	0.6	9.0

Total

Pilot	FPL Cost
Solar Water Heating (SWH)	
Residential	$3,548,850
Residential - Low Income New Construction	$920,995
Business	$629,408
Photovoltaic (PV)	
Residential	$11,045,895
Business	$5,488,461
Business PV for Schools	$4,057,967
Research & Demonstration	$1,158,841
Non-Program Specific (e.g., systems, etc.)	$3,003,097
TOTAL	$29,853,513

Pilot	Summer MW	Winter MW	Annual GWh
Solar Water Heating (SWH)			
Residential	0.7	1.3	4.3
Residential - LINC	0.1	0.1	0.3
Business	0.1	0.0	0.4
Photovoltaic (PV)			
Residential	2.6	0.1	8.1
Business	2.1	0.1	6.6
Business PV for Schools	0.1	0.0	0.3
TOTAL	5.6	1.6	20.0

[5] Costs include both O&M and capital expenditures

Solar Pilots Results – All-In System Costs, Cost-Effectiveness & Completion Rates

All-In System Costs

Pilot	Average All-In Cost			Average Size (SWH=gallons & PV=kW)			Average Unit Cost (SWH=$/gal & PV=$/kW)		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Solar Water Heating (SWH)									
Residential	$5,700	$6,800	$7,200	78	79	79	$73	$86	$91
Residential - Low Income New Construction	n/a	$3,300	$4,000	n/a	67	80	n/a	$49	$50
Business	$33,400	$52,000	$15,300	354	453	159	$94	$115	$96
Photovoltaic (PV)									
Residential	$33,500	$34,400	$33,600	6.2	7.3	8.2	$5,400	$4,700	$4,100
Business	$114,000	$117,600	$114,800	19.3	23.1	26.8	$5,900	$5,100	$4,300
Business PV for Schools[6]	n/a	n/a	$66,500	n/a	n/a	6.6	n/a	n/a	$10,100

Cost-Effectiveness Screening

Pilot	Current Rebates			Zero Rebate		
	RIM	TRC	Participant	RIM	TRC	Participant
Solar Water Heating (SWH)						
Residential	0.51	0.18	0.50	0.74	0.18	0.40
Residential - Low Income New Construction	0.21	0.28	1.52	0.59	0.28	0.52
Business	0.34	0.19	0.58	0.43	0.19	0.42
Photovoltaic (PV)						
Residential	0.46	0.27	0.74	1.01	0.27	0.40
Business	0.64	0.33	0.67	1.02	0.33	0.47
Business PV for Schools	0.13	0.15	1.19	0.53	0.15	0.19

Solar Water Heating (SWH)[7]

Offer	Reservations		Installations		Completion Rate	
	Residential	Business	Residential	Business	Residential	Business
#1 - 6/29/11	773	47	498	13	64%	28%
#2 - 10/27/11	1,594	38	1,232	20	77%	53%
#3 - 10/16/12	1,491	11	1,191	5	80%	45%
#4 - 10/15/13	428	5	47	0	11%	0%
Total	**4,286**	**101**	**2,968**	**38**		

Photovoltaic (PV)[7]

Offer	Reservations		Installations		Completion Rate	
	Residential	Business	Residential	Business	Residential	Business
#1 - 6/29/11	244	59	181	34	74%	58%
#2 - 8/30/11	179	42	119	18	66%	43%
#3 - 10/27/11	98	42	78	23	80%	55%
#4 - 5/3/12	86	40	75	20	87%	50%
#5 - 10/16/12	337	151	273	87	81%	58%
#6 - 10/15/13	357	118	48	0	13%	0%
Total	**1,301**	**452**	**774**	**182**		

[6] Business PV for Schools includes additional infrastructure, etc.
[7] Installations currently pending in 2014 for SWH Offer #4 and PV Offers #5 and #6.

CERTIFICATE OF SERVICE
DOCKET NO. 130199-EI

I HEREBY CERTIFY that a true and correct copy of FPL's Petition for Approval of Numeric Conservation Goals with accompanying testimony and exhibits was served by electronic delivery this 2nd day of April, 2014 to the following:

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