BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF DR. STEVEN R. SIM

DOCKET NO. 130199 - EI

April 2, 2014

Q. Please state your name and business address.

A. My name is Steven R. Sim, and my business address is 9250 West 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 of Integrated Resource Planning in the Resource Assessment & Planning Department.

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

A. I supervise and coordinate analyses that are designed to determine the magnitude and timing of FPL's resource needs and then develop the integrated resource plan with which FPL will meet those resource needs.

Q. Please describe your educational background and professional experience.

A. I graduated from the University of Miami (Florida) with a Bachelor's degree in Mathematics in 1973. I subsequently earned a Master's degree in Mathematics from the University of Miami (Florida) in 1975 and a Doctorate in Environmental Science and Engineering from the University of California at Los Angeles (UCLA) in 1979.

While completing my degree program at UCLA, I was also employed full-time as a Research Associate at the Florida Solar Energy Center during 1977 - 1979. My responsibilities at the Florida Solar Energy Center included an evaluation of Florida consumers' experiences with solar water heaters and an analysis of potential renewable energy resources including photovoltaics, biomass, wind power, etc., applicable in the Southeastern United States.

In 1979 I joined FPL. From 1979 until 1991, I worked in various departments including Marketing, Energy Management Research, and Load Management, where my responsibilities concerned the development, monitoring, and cost-effectiveness analyses of demand side management (DSM) programs. In 1991 I joined my current department, then named the System Planning Department, where I held different supervisory positions dealing with integrated resource planning (IRP). In late 2007 I assumed my present position.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibits SRS-1 through SRS-16 which are attached to my testimony:

Exhibit SRS-1	FPL's Resource Planning Process as Applied to DSM Goal-Setting;
Exhibit SRS-2	Excerpt from FPL's 2014 Site Plan Addressing FPL's Need for a 10% Generation-Only Reserve Margin (GRM) Reliability Criterion;

Exhibit SRS-3	Economic Elements Accounted for in DSM Preliminary Screening Tests: Benefits Only;
Exhibit SRS-4	Economic Elements Accounted for in DSM Preliminary Screening Tests: Benefits and Costs;
Exhibit SRS-5	Summary Results of Preliminary Economic Screening of Individual DSM Measures (w/o and w/CO_2 Costs);
Exhibit SRS-6	Summary Results of Preliminary Economic Screening of Individual DSM Measures: Sensitivity Cases;
Exhibit SRS-7	Forecasted Fuel and Environmental Compliance Costs;
Exhibit SRS-8	Projection of FPL's Resource Needs for 2015-2025 with No Incremental DSM Signups After 2014;
Exhibit SRS-9	Comparison of DSM Achievable Potential Summer MW Values with FPL's Projected Summer Resource Needs (Assuming the Resource Needs are Met Solely by DSM);
Exhibit SRS-10	Overview of Supply Only and With DSM Resource Plans;
Exhibit SRS-11	Comparison of the Five Resource Plans: Economic Analysis Results and Consequences;
Exhibit SRS-12	Example of Levelized System Average Electric Rate Calculation for One Resource Plan: RIM 337 MW;

Exhibit SRS-13 Additional Cost Needed to be Added to RIM 337 MW Plan to Increase its Levelized System Average Electric Rate to That of TRC 337 MW Plan;

Exhibit SRS-14 Comparison of the Five Resource Plans: Projection of System Average Electric Rates and Customer Bills (Assuming 1,200 kWh Usage);

Exhibit SRS-15 Comparison of the Five Resource Plans: Projection of System Emissions; and

Exhibit SRS-16 Comparison of the Five Resource Plans: Projection of System Oil and Natural Gas Usage.

Q. What is the scope of your testimony?

A. My testimony addresses seven main topics:

(1) FPL's integrated resource planning process, particularly the application of a multi-step process that is used by FPL for a DSM goal-setting docket;

(2) The analytical methods used to project FPL's future resource needs, key forecasts and assumptions, and selection of a specific Supply option with which individual DSM measures were initially analyzed;

(3) The various screening tests that FPL used in a series of preliminary economic screening analyses of individual DSM measures;

(4) The approach used to perform preliminary economic screening analyses of individual DSM measures, and the results of those preliminary screening analyses;

(5) The specific projections of FPL's resource needs for the 2015 through 2024 goals-setting period, plus one additional year (2025), and how these projections, in combination with the projected Achievable Potential values for DSM, are utilized to first develop a Supply Only resource plan, and then develop "With DSM" resource plans;

(6) The results of the economic and non-economic analyses of the resource plans and FPL's proposed DSM Goals for the 2015-2024 time period based on these analytical results; and,

(7) Resource planning perspectives regarding FPL's proposed DSM Goals.

Q. Please summarize your testimony.

A. The application of FPL's resource planning process, using current forecasts and assumptions, and recognizing the highly-efficient nature of FPL's generation system, leads to the conclusion that FPL's customers will be best served by proposed DSM Goals of 337 MW (Summer) for the 2015-2024 DSM Goals period. (The Summer MW aspect of DSM is the most important DSM characteristic in regard to resource planning for FPL's system. Therefore, I describe the DSM portfolios that were analyzed by their respective DSM Summer MW amounts. FPL witness Koch discusses the associated Winter MW and annual GWh aspects of FPL's proposed goals in his direct testimony.)

FPL's proposed DSM Goals presented in this filing are based on the results of FPL's most recent resource planning process. This not only meets the

requirements of Rule 25-17.001 (3) F.A.C., it also ensures that the proposed DSM Goals reflect FPL's specific resource needs and the individual characteristics and economics of FPL's utility system. FPL's integrated resource planning process, as applied to the setting of DSM Goals, consists of six analytical steps.

The results of applying FPL's resource planning process to determine DSM's proposed role in FPL's resource plans for 2015-2024 time period can be summarized as follows:

- Preliminary economic screening of the individual DSM measures identified in FPL's Technical Potential update was performed utilizing the RIM, TRC, and Participant preliminary screening tests in conjunction with a years-to-payback screening test to account for free riders. The measures that survived this preliminary economic screening resulted in total Achievable Potential of 526 MW (Summer) using the RIM preliminary screening test path and 576 MW (Summer) using the TRC preliminary screening test path.

- These two Achievable Potential values were then compared to FPL's projected resource needs for the goals-setting years of 2015-2024. FPL has much larger resource needs in the years 2019 through 2021 than what the DSM Achievable Potential is capable of meeting. Therefore, FPL must assume the addition of a Supply option beginning in year

2019. This reduced the amount of DSM needed to meet remaining resource needs, so FPL extended its analyses to examine what role DSM could have in meeting additional resource needs in the year 2025.

- FPL created a "Supply Only" resource plan that assumed no incremental DSM signups after the year 2014. In addition, FPL created four "With DSM" resource plans. Two of the With DSM resource plans used an optimization process to select the most economic DSM measures so that the plans met FPL's resource needs and complied with all of FPL's reliability criteria. The other two With DSM plans simply incorporated all of the projected Achievable Potential, but did not comply with all of FPL's reliability criteria.

- The five resource plans were analyzed from both economic and non-economic perspectives. In the economic analyses, the RIM 337 MW resource plan was the clear winner. It results in the lowest levelized system average electric rates over the full analysis period of any of the five plans, and results in the lowest annual electric rates for each year in the 2015-2025 time period of any of the four With DSM plans. In addition, the RIM 337 resource plan is the only With DSM resource plan that is projected to avoid cross-subsidization of customer groups due to DSM implementation.

- In the non-economic analyses, there were no significant differences between the Supply Only and any of the With DSM resource plans: All five plans are projected to result in comparably lower FPL system fossil fuel use and system emissions in 2025 compared to 2015.

- Based on the analysis results, FPL concludes that the RIM 337 MW resource plan is the best resource plan with which to serve its customers. Accordingly, FPL is proposing that its DSM Goals for the years 2015-2024 be based on the DSM portfolio included in the RIM 337 MW resource plan.

Q. Is it reasonable and appropriate for FPL's proposed Goals to be lower than the current Goals?

A. Yes. FPL's proposed DSM Goals for 2015-2024 (337 MW Summer) are appropriate and logical from a resource planning perspective, particularly in light of several important considerations.

First, the amount of energy efficiency projected to be delivered by federal and state codes and standards over the respective 10-year Goals periods has greatly increased. Therefore, a significant amount of energy efficiency will be delivered to FPL's customers through codes and standards. This also represents a significant decrease in potential energy efficiency that might otherwise have been available from utility DSM measures.

Second, compared to forecasts and assumptions used in the 2009 DSM Goals analyses, current forecasts and assumptions have changed greatly. Among these are: (i) current forecasted fuel costs are approximately 50% lower than forecasted in 2009; (ii) current projected CO_2 compliance costs are significantly lower than those projected in 2009 (and are now projected to be zero for most years in the 2015-2024 Goal-setting time period); and (iii) FPL's generating system is more fuel efficient than projected in 2009 and is projected to become even more fuel efficient in the future.

Each of these three factors has greatly benefited FPL's customers, and will continue to benefit them, through lower fuel and emission costs. These developments are very good for FPL's customers. The fact that lower fuel and emission costs also lower the potential benefits from kWh reductions offered by DSM measures is simply a consequence of a very positive picture for FPL's customers. This lowers the economic competitiveness of DSM options versus Supply options, which, in turn, leads to lower proposed DSM Achievable Potential values. A diminished potential for utility DSM measures, combined with lower potential cost savings from utility DSM measures, make lower proposed DSM Goals a logical outcome of a very positive situation for FPL's customers.

In addition, FPL's customers are projected to receive significantly more total energy efficiency than was projected in 2009 when the impact of codes and

standards is added to FPL's proposed goals. In 2009, FPL's customers were projected to receive 1,255 MW from codes and standards, plus 664 MW for FPL's proposed DSM Goals, for a total of 1,919 MW of energy efficiency/DSM for the 10-year goals-setting period. Today, FPL's customers are projected to receive 1,823 MW from codes and standards. When added to FPL's proposed DSM Goals of 337 MW, the total energy efficiency/DSM to be delivered to FPL's customers is 2,160 MW for the current 10-year goals-setting period. This is approximately 13% more total energy efficiency/DSM than was projected in 2009 from the combination of codes and standards and FPL's proposed goals.

Furthermore, the resource plan that includes this proposed DSM is projected to result in both the lowest levelized system average electric rates over the analysis period for all resource plans analyzed, and the lowest annual electric rates of any of the DSM-based resource plans for each year in 2015-2025 time period. This is a very desirable position for FPL's customers.

I. FPL'S RESOURCE PLANNING PROCESS

Q. Does the DSM Goal-setting process require the use of a utility's own resource planning process?

A. Yes. Rule 25-17.0021 F.A.C., subsection (3) states in part that: "*In a proceeding to establish or modify goals, each utility shall propose numerical*

goals for the ten year period..., based upon the utility's most recent planning process..." (Emphasis added).

Q. Why is it important for a utility to use its own resource planning process in a DSM Goal-setting process?

A. The use of a utility's own resource planning process, using forecasts and other information specific to the individual utility, ensures that decisions on DSM resource additions for that utility are based both on the individual utility's projection of its specific resource needs and on a determination of the economics of DSM resource additions for its individual utility system. This approach is also consistent with how decisions on generation resources are made because these decisions are based on the individual utility's projected resource needs and determinations of the economics of the generation resource options being considered.

Q. Are FPL's proposed DSM Goals based on FPL's most recent resource planning process?

A. Yes. After updating a number of key forecasts and assumptions in late 2013 that are being used in FPL's 2014 resource planning work, including the DSM Goals analyses discussed in this testimony, FPL's integrated resource planning process was used to analyze DSM resources for the years 2015 through 2024 (i.e., the time period addressed in the current DSM Goals docket). FPL also used these updated assumptions and its integrated resource planning process in its analyses leading to its 2014 Ten-Year Site Plan (Site Plan) filing.

Q. What are the objectives of FPL's integrated resource planning process?

A. FPL's basic IRP process was developed in the early 1990s and, with enhancements over the years, has been used since that time to determine: 1) the timing of when new resources are needed, 2) the magnitude (MW) of the needed resources, and 3) the types of resources that should be added. The determination of the types of resources that should be added is typically based, after FPL's reliability criteria are met, primarily on what resources result in the lowest system average electric rates for FPL's customers.

It should be noted that when only Supply options (i.e., power plants or power purchases) are the resources in question, the determination of what resource to add can be made on the basis of lowest total system costs. In cases addressing only Supply options, the outcome when viewing results from the lowest total cost perspective is the same as when viewing results from the lowest average electric rate perspective. This is because the number of gigawatt-hours (GWh) over which the costs are recovered from customers does not change. Consequently, when only Supply options are being analyzed, the results of an economic analysis indicate simultaneously the most economical Supply option from both a total cost and an electric rate perspective.

However, when DSM options are being analyzed, as is the case in this docket, one cannot examine only projected system costs. This is because the number of GWh over which these costs are recovered from customers will change due

to the GWh reduction aspect of DSM options. If the utility's costs are recovered over fewer GWh, the result is upward pressure on the utility's electric rates that are charged to all customers. Therefore, when analyzing DSM options, one must specifically calculate electric rates in order to determine which resource option, Supply or DSM, is the most economic resource option to add.

Q. Please provide an overview of FPL's IRP process.

A. An overview of FPL's IRP process is presented annually in FPL's Site Plan filings. One can summarize FPL's IRP process as having the following four tasks:

- Task 1: Determine the magnitude and timing of FPL's new resource needs.
- Task 2: Identify the resource options and resource plans that are available to meet the determined magnitude and timing of FPL's resource needs (i.e., identify the available competing options and resource plans).
- Task 3: Evaluate the competing resource options and resource plans in regard to system economics and non-economic factors.
- Task 4: Select a resource plan from which FPL management will commit, as needed, to the nearer-term options.

Q. Was this resource planning approach used to analyze the DSM resource options?

A. Yes. The IRP process outlined above describes the basic approach that FPL takes in its major resource planning efforts, including previous DSM Goals dockets, and which was taken in the analyses presented in this filing.

Once the timing and magnitude of FPL's resource needs were established, FPL then identified resource options that could meet those needs. These options included a wide range of DSM measures that were applicable to FPL and initially found to be potentially economic, plus Supply options with which the DSM measures must compete. FPL then developed five resource plans that included these competing resource options. System economic and non-economic analyses were conducted, and a decision was made regarding the best resource plan and associated resource options, both DSM and Supply, for FPL's customers.

Q. How does FPL apply its IRP process to the specific analyses that are needed for a DSM Goals-setting docket?

A. In a DSM Goals-setting docket, Florida's electric utilities disregard the DSM options they are currently implementing and, 'starting from scratch', project how much DSM they should implement for the next 10 years. FPL approaches that task by applying its IRP process in a 6-Step analysis approach. This same basic process was used by FPL in its prior DSM Goals-setting dockets.

Q. Please briefly discuss the 6-Step resource planning process for DSM Goals-setting.

A. An overview of the 6 step planning process is presented in Exhibit SRS-1. The process can be summarized as follows:

Step 1: The theoretical Technical Potential for DSM is determined in which practical considerations of cost, market forces, the utility's resource needs, etc. are all ignored. The end result of this step is a list of individual DSM measures that appear to be applicable in a utility's service territory. FPL witness Koch describes in his direct testimony how FPL updated its 2009 Technical Potential with current information.

Step 2: Assuming no incremental DSM signups occur after December 31, 2014, FPL's projected resource needs for 2015 through 2024 were determined. Two determinations of resource needs are made: one if the resource needs are met solely by Supply options and one if the resource needs are met solely by DSM options. These two projections are different because of FPL's 20% total reserve margin criterion. For example, if the resource need to be met solely by DSM options for a given year is 100 MW, the resource need to be met solely by Supply options for the same year is 120 MW.

The results of these determinations are used in two ways. First, using the projected resource needs if the needs are met solely by Supply

options, a generation addition is selected for use in the preliminary economic screening of DSM measures (which occurs in Step 3). Second, these determinations are used later to create both a Supply Only resource plan and at least one With DSM resource plan which is used for the detailed system economic and non-economic analyses that occur in Step 6.

Step 3: In this step, all of the individual DSM measures identified in the Step 1 technical potential work are analyzed using a series of preliminary economic screening evaluations against a single Supply option. This series of screening calculations utilize the Participant screening test, the RIM preliminary screening test, the TRC preliminary screening test, and the "years-to-payback" screening test. The DSM measures that survive this preliminary screening are deemed to be potentially economical resource options for FPL's system and are retained for more detailed system analyses. In addition, the maximum incentive level that the utility can pay for each surviving DSM measure is identified in this step.

Step 4: The surviving DSM measures, and their accompanying maximum incentive levels, are then analyzed to determine the projected Achievable Potential over the 2015 through 2024 time period. The resulting projection for each DSM measure represents the maximum annual signups for each year of the 10-year DSM Goals period. Cumulatively, the sum of these maximum annual signups for each

DSM measure identifies how many MW of DSM resources are projected to be available each year to potentially meet FPL's projected annual resource needs. FPL witness Koch addresses the process of evaluating the Achievable Potential for the surviving DSM measures in his direct testimony.

Step 5: In this step, the projections of resource needs developed previously in Step 2 are used again in several ways. First, FPL uses the projection of resource needs, if the needs are met solely by Supply options, to develop a resource plan in which only Supply options are added. This resource plan is referred to as the "Supply Only" resource plan. Next, FPL compares the projected maximum annual DSM MW signups identified in Step 4 to the projected annual resource needs if those needs are met solely by DSM options. From this comparison, at least one "With DSM" resource plan is developed. This resource plan may consist solely of DSM measures, or a combination of DSM and Supply options, for the 10-year Goals-setting period. At the conclusion of Step 5, the Supply Only and With DSM resource plans have been developed for the more detailed system analyses.

Step 6: These resource plans are analyzed from both economic and non-economic perspectives. The best resource plan is identified and the amount of incremental DSM included in that plan is selected as FPL's proposed DSM Goals for the 2015-2024 time period.

Q. Does FPL's 6-step analytical process outlined above result in Supply and DSM resource options being evaluated on a level playing field?

A. Yes. One of the objectives of integrated resource planning is to evaluate all resource options under consideration using a "level playing field" approach. FPL's analyses evaluate both Supply and DSM resource options in terms of the resource options' ability to meet FPL's resource needs. In addition, these analyses allow the resources to be fully evaluated from an economic perspective in regard to both benefits and costs, as well as from non-economic perspectives, using an identical set of evaluation metrics. In regard to the economic analyses, all projected cost impacts that will affect FPL's customers in terms of the electric rate levels they will be charged are accounted for.

Q. Which of the 6 steps outlined above will you be addressing in your testimony?

A. I address Steps 2, 3, 5, and 6 of this process, plus other topics, in the remainder of my testimony. FPL witness Koch addresses Steps 1 and 4, plus other topics, in his direct testimony.

II. STEP 2 OF FPL'S PLANNING PROCESS: METHODS AND ASSUMPTIONS USED TO PROJECT FPL'S RESOURCE NEEDS

Q. How does FPL determine what its projected future resource needs are?

A. FPL uses three reliability criteria in projecting what its future resource needs are. One criterion is a minimum total reserve margin of 20% for both Summer

and Winter peak hours. The 20% total reserve margin criterion was approved by the Florida Public Service Commission (FPSC) in Order No. PSC-99-2507-S-EU issued in Docket No. 981890-EU.

The second reliability criterion used by FPL is a Loss-of-Load-Probability (LOLP) criterion. Simply stated, LOLP is a projection of how well an electric utility system may be able to meet its firm demand (i.e., a measure of how often firm load may exceed available resources). In contrast to a reserve margin approach that looks at the one Summer peak hour and the one Winter peak hour, the LOLP approach looks at the peak hourly demand for each day of the year. The LOLP approach takes into consideration the probability of individual generators being out-of-service due to scheduled maintenance or forced outages. LOLP is typically expressed in terms of "numbers of times per year" that the system firm demand could not be served. FPL's LOLP criterion is a maximum of 0.1 days per year. This LOLP criterion is commonly used throughout the electric utility industry.

The third reliability criterion utilized by FPL is a minimum generation-only reserve margin (GRM) of 10%. The issue of having a sufficient generation component of the projected total reserve margin has been discussed annually in FPL's Site Plan filings beginning in 2011. In FPL's 2014 Site Plan, FPL introduced the minimum 10% GRM criterion and discussed the reasons the criterion was adopted. The new GRM criterion is applied beginning with the

Summer of 2019. A relevant excerpt from the 2014 Site Plan that addresses FPL's need for the GRM criterion is attached as Exhibit SRS-2.

For at least the last decade or two, FPL's projected need for additional resources has been driven by the Summer total reserve margin criterion. This again was the case in FPL's current reliability analysis that was the basis for FPL's projected resource needs for 2015-2024. (For reasons that will be discussed later in my testimony, FPL also examined its projected resource needs for an additional year, 2025, in its DSM Goals-setting analyses.)

Q. In making its projection of FPL's future resource needs, what forecasts and assumptions were used?

A. In order to perform the numerous analyses necessary for determining FPL's proposed DSM Goals, it was necessary to develop and "freeze" various forecasts and assumptions in the 4th Quarter of 2013 so that the analyses could begin. The primary forecasts and assumptions include the following:

1) FPL's October 2013 load forecast and an October fuel cost forecast (both of which were also used in FPL's 2014 Site Plan analyses);
2) Consistent with FPL's 2014 Site Plan, there are five approved and/or planned changes to FPL's generating system, including: (i) the retirement of the existing Putnam Units 1 & 2 (a decrease of 498 MW Summer) at the end of 2014; (ii) the completion of the Port Everglades modernization in 2016 (an increase of 1,237 MW Summer); (iii) the removal of all existing gas turbines (GTs) in Broward County (a

decrease of 1,260 MW Summer) for environmental reasons, and the addition of 5 new combustion turbines (CTs) (an increase of 1,005 MW Summer) in Broward County, by the end of 2018; (iv) the addition of the firm capacity portion of the EcoGen power purchase agreement (PPA) in 2021 (an increase of 180 MW); and (v) the addition of Turkey Point Units 6 & 7 in 2022 and 2023, respectively (an increase of 2,200 MW Summer); and,

3) No incremental DSM signups after the end of 2014.

Q. Does the October 2013 load forecast account for projected energy efficiency impacts from federal and state codes and standards?

A. Yes. The forecast assumes a Summer peak reduction of 1,823 MW from federal and state codes and standards during the 2015 - 2024 time period.

Q. From a resource planning perspective, is an energy efficiency impact delivered through codes and standards, and accounted for in the load forecast, viewed in the same way as the same energy efficiency impact delivered by utility DSM measures?

A. Yes. From a resource planning perspective, an identical forecast of lower firm load will be used in planning analyses regardless of whether the energy efficiency impact is provided by codes and standards or by utility DSM. The only meaningful difference is that, if the energy efficiency impact is delivered through codes and standards, this specific impact is no longer available to be delivered by utility DSM.

Q. What is the implication of assuming no incremental DSM signups after the end of 2014?

A. This assumption has two implications. First, it allows FPL to start its DSM Goals analyses for the 2015 – 2024 period with the proverbial "clean sheet of paper," which allows a fresh look at DSM in light of current load forecasts, fuel cost forecasts, changes in FPL's generating system, etc. Second, the removal of the previously projected DSM signups after 2014 increases the magnitude (MW) of FPL's projected resource needs and moves those projected resource needs closer to the present. The resulting greater magnitude of, and earlier timing of, future resource needs will tend to enhance the potential for DSM options to be economically competitive.

Q. Earlier you mentioned that one of the outcomes of the projection of resource needs was to select a Supply option for use in the preliminary economic screening of individual DSM measures. What Supply option was selected for the preliminary screening?

A. A combined cycle (CC) unit of 1,269 MW (Summer) with a projected in-service year of 2019 was selected for the preliminary screening work. This CC unit is assumed to be similar to the CC unit that is now being installed at the Port Everglades site in the modernization project.

III. STEP 3 OF FPL'S PLANNING PROCESS: OVERVIEW OF PRELIMINARY ECONOMIC SCREENING TESTS FOR DSM

Q. Which preliminary screening tests for DSM were used in this early step of FPL's DSM Goals-setting analyses?

A. FPL utilized four DSM screening tests in these analyses: the Participant screening test, the RIM preliminary screening test, the TRC preliminary screening test, and the years-to-payback screening test using a two-year criterion. All four of these tests are designed to provide preliminary economic screening information regarding the individual DSM measures being evaluated. The intent of the Participant test is to determine if it makes economic sense for an individual customer to participate in a specific DSM measure. The intent of the RIM and TRC tests is to provide preliminary information with which to judge whether it might be potentially beneficial for all of FPL's customers if FPL were to offer the DSM measure being evaluated. The perspective that is supposedly taken with these two screening tests is of the utility system as a whole; i.e., for all customers including both non-participants and participants. (However, as will be discussed shortly, only the RIM test really addresses the issue of whether it makes sense for a utility to offer a DSM measure when considering all customers on a utility system.) The intent of the years-to-payback test is to address the "free rider" issue so that the utility, and all of its customers, are not making incentive payments,

and incurring administrative costs, for DSM measures that customers will likely purchase even without an incentive payment.

Q. In its 2009 DSM Goals filing, FPL accounted for the projected costs for SO_2, NO_x, and CO_2 in the RIM and TRC preliminary screening tests and referred to those screening tests as the "E-RIM" and "E-TRC" tests. Is FPL accounting for any projected environmental compliance costs in the screening tests in the current analyses?

A. Yes. FPL is accounting for projected compliance costs for SO_2 and NO_x in both the RIM and TRC preliminary screening tests. Consistent with the direction provided in the Order Establishing Procedure for this docket (Order No. PSC-13-0386-PCO-EU), FPL is not accounting for projected CO_2 compliance costs in these screening tests in FPL's base case analyses, but FPL is analyzing the impact of projected CO_2 compliance costs in sensitivity screening analyses. In an attempt to avoid confusion regarding the accounting of CO_2 compliance costs in these two screening tests, I will refer to these screening tests only by the terms "RIM" and "TRC" in the remainder of my testimony. In order to indicate whether CO_2 costs are included in the screening analyses, I will use the terminology of "w/CO_2" and "w/o CO_2" for the different analyses.

Q. Have the four preliminary screening tests been used by FPL in each of the prior DSM Goals filings?

A. Yes. Furthermore, the Participant test, the RIM test, and the TRC test are currently required by the Commission as part of the Commission-approved

cost-effectiveness methodology for individual DSM program filings even outside of a goals-setting docket. In regard to the years-to-payback test, Rule 25-17.0021 F.A.C., subsection (3) states that, in proposing DSM Goals, each utility's proposed Goals *"...shall reflect consideration of...free riders..."* Consequently, FPL has used a years-to-payback test with a 2-year threshold in all of its DSM Goals filings starting with the initial DSM Goals docket in 1994. FPL witness Deason discusses the years-to-payback test further in his direct testimony.

Q. Please discuss the primary differences between the Participant, RIM, and TRC preliminary screening tests.

A. The differences in these three preliminary screening tests can best be described by comparing the specific economic elements that are accounted for in each test. Exhibit SRS-3 presents a comparison of the economic elements that are accounted for in the calculation of potential DSM benefits in each of these three screening tests.

A listing of the types of DSM-related economic benefits that may potentially be obtained by individual DSM participants and/or a utility system appears in the two shaded columns. Adjacent to the shaded columns are columns that indicate whether a specific screening test actually accounts for those potential economic benefits in the test.

Two main conclusions can be drawn from this exhibit. First, all three tests account for all of the relevant economic impacts that represent potential benefits from either participating in, or from implementing, a DSM measure. Second, in regard to the RIM and TRC tests, the tests are identical in regard to accounting for potential benefits that may be derived from DSM measures. In other words, these two tests will provide an identical calculation of potential benefits for a specific DSM measure.

Q. Does each of the three tests also include all relevant DSM-related cost impacts?

A. No. Exhibit SRS-4 expands the benefits-only perspective presented in Exhibit SRS-3 to also include DSM-related cost impacts. Several additional conclusions can be drawn from this exhibit.

First, the Participant screening test does account for all of the relevant DSM-related potential costs that will be incurred by a customer who chooses to participate in a DSM measure. Therefore, the Participant screening test fully accounts for all potential benefits and costs that are received and/or incurred by a potential participant in a DSM measure. This is obviously a good way to assess the impacts on potential participants.

Second, the RIM screening test also accounts for all of the relevant DSM-related potential cost impacts that will be incurred by the utility and all of its customers, both DSM participants and non-participants. Therefore, the RIM

screening test fully accounts for all benefits and costs that are received and/or incurred by all of a utility's customers if the utility decides to offer a specific DSM measure. This is obviously appropriate for assessing the impacts on all customers, participants and non-participants alike.

Third, the TRC screening test does not account for all of the relevant DSM-related potential cost impacts that will be incurred by the utility and all of its customers. This so-called "total resource cost" test omits the incentive payments made to DSM program participants, costs that are recovered from all of the utility's customers. FPL paid approximately $190 million in DSM incentives during 2013. These incentive payments represent approximately 78% of FPL's total DSM expenditures in 2013 of approximately $244 million that will be recovered from customers through the ECCR clause. (Obviously, incentives represent a substantial cost impact to customers and should not be disregarded in the DSM Goal-setting process.)

Furthermore, the TRC screening test also omits the economic impact of unrecovered revenue requirements on the utility's electric rates. In addition, the TRC screening test includes the participant's out-of-pocket costs for participating in the DSM measure. These participant's out-of-pocket costs are not recovered from utility customers (and these costs are already captured in the Participant test). Thus the TRC screening test does not appropriately

assess the cost impacts of DSM measures on either participants or non-participants.

Therefore, only the combination of the Participant and RIM screening tests correctly include all of the economic impacts, both benefits and costs, which are incurred by participants and by all of a utility's customers when DSM measures are implemented. In contrast, the TRC screening test omits two important costs/economic impacts and "double counts" the participant's costs which are already captured in the Participant screening test.

Q. Does the inclusion of projected environmental compliance costs for emissions in the RIM and TRC preliminary screening tests allow – to the extent possible in a screening test - both of these screening tests to fully account for the GWh-related potential benefits of DSM measures?

A. Yes. FPL's use of the RIM and TRC preliminary screening tests have always fully accounted for the potential fuel savings benefits from the GWh reductions of DSM measures and these calculations for the two screening tests result in identical projected fuel savings benefits for a specific DSM measure. By accounting for projected SO_2 and NO_x compliance costs in the base case screening analyses, and by also accounting for projected CO_2 compliance costs in a sensitivity screening analysis as previously mentioned, the RIM and TRC screening tests also identically account for potential emission-related benefits from the GWh reductions of DSM measures (as well as emission-related benefits and costs from the MW reductions of DSM measures).

Consequently, both the RIM and TRC screening tests fully account for all projected potential fuel and emission cost-savings benefits from the GWh reduction aspect of DSM measures. (However, only the RIM screening test also accounts for the impact of unrecovered revenue requirements on electric rates from the GWh reduction aspect of DSM measures.)

IV. STEP 3 OF FPL'S PLANNING PROCESS (CONTINUED): PRELIMINARY ECONOMIC SCREENING ANALYSIS APPROACH & RESULTS

Q. What is the objective of the preliminary economic screening of individual DSM measures that is carried out in Step 3 of FPL's process?

A. The objective is to identify the individual DSM measures that have the greatest potential for creating a portfolio of DSM measures that will be economic when that portfolio is evaluated in detail for the FPL system as a whole as part of a resource plan.

Q. Please provide an overview of how the preliminary economic screening of individual DSM measures was conducted.

A. Each individual DSM measure was evaluated along two separate screening "paths." One path examined the DSM measure from the perspectives of the RIM screening test, the Participant screening test, and the years-to-payback screening test using a two-year criterion. The other path examined the DSM measure from the perspectives of the TRC screening test, the Participant

screening test, and the years-to-payback screening test using a two-year criterion. The two paths are referred to as the "RIM" and "TRC" paths, respectively.

The screening analyses evaluated 850 DSM measures. These 850 measures then started down the two screening paths described above. Each path utilized four screening evaluation steps as applicable to the cost categories that are included in either the RIM or TRC screening tests, plus the Participant screening test and the years-to-payback screening test.

These four screening steps each utilize a full accounting of projected potential benefits from the DSM measure and a step-by-step accounting of DSM-related costs. These screening steps can be summarized as follows:

Screening Step 1: Each of the 850 DSM measures is evaluated using only the costs of unrecovered revenue requirements for the RIM screening test, and the participant's incremental out-of-pocket costs for the TRC screening test. Those measures surviving this screening step are carried forward to Screening Step (2), while measures failing at this step (or at any later step) are dropped from further analyses.

Screening Step 2: Administrative costs are now added to those costs considered in the initial screening step for both the RIM and TRC paths.

As before, only those measures surviving the RIM and TRC screening tests in this step are carried forward.

Screening Step 3: This screening step applies only to the RIM screening path and only to certain DSM measures. In this step, for those remaining measures that do not pass the Participant test without an incentive payment, the amount of incentive payment needed to result in a Participant screening test benefit-to-cost ratio of 1.00 is first calculated. Then that incentive payment is also applied to the specific measure for the RIM screening test. It is then determined if the measure still passes the RIM screening test. (Note that this screening step does not apply to the TRC path because the TRC screening test does not account for incentive payments made by a utility to participating customers.) Those measures surviving this step are carried forward to the final screening step.

Screening Step 4: The years-to-payback test using a two-year criterion is applied in this final step to both of the paths. For each DSM measure that has survived the first three screening steps, a calculation is made to see if a participant's incremental out-of-pocket costs will be fully recovered from bill savings and, if applicable, tax savings, in two years or less without any incentive payment from the utility. Only those DSM measures for which the participant's costs are not fully recovered in two years without an

incentive payment are assumed to have survived this final step in the screening process.

Q. What were the results of the preliminary economic screening?

A. The results of the preliminary screening are presented in Exhibit SRS-5. As directed by Order No. PSC-13-0386-PCO-EU, FPL performed a base case analysis assuming no CO_2 costs ("w/o CO_2"), but also performed a sensitivity analysis in which CO_2 costs were assumed ("w/CO_2").

As shown in Exhibit SRS-5, from the "starting point" of 850 DSM measures, 120 measures survived the RIM screening path, and 300 measures survived the TRC screening path, using the w/o CO_2 cost assumption. These values changed only slightly when CO_2 costs were included: 124 measures survived the RIM screening path and 301 measures survived the TRC screening path. Both lists of DSM measures, those that survived the "w/o CO_2" screening, and those that survived the "w/CO_2" screening, were carried forward into Step 4 (Achievable Potential) of the resource planning process.

Q. Was it expected that so many more DSM measures survived the TRC path compared to the RIM path?

A. Yes. Because the TRC screening test does not account for all of DSM-related cost impacts that will be recovered from customers through electric rates, while the RIM screening test does account for all of these cost impacts, TRC is a much more lenient "test." Consequently, it is to be expected that more

DSM measures will survive a "test" that does not account for all of the cost impacts that will affect all of FPL's customers.

Q. Did FPL perform any additional sensitivity case screening analyses of the DSM measures?

A. Yes. In addition to the "w/CO_2 cost" sensitivity screening analysis just mentioned, 8 other sensitivity screening analyses were performed as directed in Order No. PSC-13-0386-PCO-EI. These 8 sensitivity cases include various combinations of High, Medium, and Low fuel cost forecasts and 1-year, 2-year, and 3-year criteria for the years-to-payback screening test.

Q. How were the various fuel cost sensitivity forecasts and years to payback sensitivity periods developed?

A. FPL followed its usual practice in regard to the development of the High and Low fuel cost forecasts. A Medium fuel cost forecast was first developed. Then FPL adjusted the Medium fuel cost forecast upwards (for the High fuel cost forecast sensitivity), or downwards (for the Low fuel cost forecast sensitivity), by multiplying the annual cost values from the Medium fuel cost forecast by a factor of (1 + the historical volatility in the 12-month forward price, one year ahead) for the High fuel cost forecast sensitivity, or by a factor of (1 – the historical volatility of the 12-month forward price, one year ahead) for the Low fuel cost forecast sensitivity. In regard to the development of years-to-payback criterion sensitivity values, FPL added or subtracted 1 year to or from its base case 2 years-to-payback criterion, resulting in 3 years-to-payback, and 1 year-to-payback, sensitivity case criteria. FPL believes that

this variation is sufficient to illustrate the sensitivity of the screening process to differences in the years-to-payback criterion.

Q. What were the results from these sensitivity case screenings?

A. The number of DSM measures that survived the four screening steps for both the RIM and TRC paths for these sensitivity cases are presented in Exhibit SRS-6. In regard to the number of DSM measures that survive the RIM and TRC screening paths, there is considerable variation in regard to the results as the assumptions change from one sensitivity case to another. Two examples demonstrate this point.

- The first example looks at changing only the fuel cost forecast assumption while assuming no change in the years-to-payback screening test criterion. When varying the fuel cost forecast using a 2 years-to-payback criterion, the numbers of DSM measures surviving the RIM screening path vary considerably: 62 (Low Fuel), 120 (Medium Fuel), and 231 (High Fuel). However, there is relatively little variation in the numbers of DSM measures surviving the TRC screening path: 274 (Low Fuel), 300 (Medium Fuel), and 290 (High Fuel).

- The second example looks at changing the years-to-payback criterion while assuming no change in the fuel cost forecast. When using the Medium fuel cost forecast, and varying the years-to-payback criterion between 1, 2, and 3 years, the numbers of DSM

measures surviving the RIM screening path vary as follows: 140 (1-year payback), 120 (2-year payback), and 67 (3-year payback). The numbers of DSM measures surviving the TRC screening path are: 393 (1-year payback), 300 (2-year payback), and 193 (3-year payback).

As mentioned above, the results of the sensitivity case screenings vary considerably. In general, higher numbers of DSM measures continue to survive the sensitivity case screenings with the TRC screening path and more variation can be seen in the numbers of DSM measures surviving the RIM screening path. The primary reason for the differences in sensitivities between the two screening paths is due to the differences between the RIM and TRC screening tests themselves. As explained previously, the RIM screening test includes all DSM-related cost impacts that will be recovered from all of FPL customers, but the TRC screening test includes only one of these costs (administrative costs). Thus, for the same DSM measure, the TRC screening "test" will typically result in a much higher projected benefit-to-cost ratio than will the RIM screening test. Thus the TRC screening test makes it appear that there is a much larger benefits "cushion" above the partial set of DSM costs that screening test includes.

Thus when a major assumption, such as the fuel cost forecast, changes, the results from the TRC screening path vary little due to this projected (but

inaccurate) "cushion" assumed in the TRC screening test. Because the RIM screening test fully accounts for DSM-related cost impacts, this screening test projects a lower (and accurate) cushion of net benefits compared to costs. In other words, many more DSM measures are projected to be closer to the benefits-to-costs breakeven point. When a major assumption such as the fuel cost forecast is changed, the RIM screening path is more likely to show a greater number of DSM measures moving across this breakeven point.

Also, because the TRC screening test does not account for either unrecovered revenue requirements or utility incentive payments, a greater number of DSM measures with high kWh reduction values survive the TRC screening path than survive the RIM screening path. The years-to-payback screening test determines how quickly a DSM measure pays for itself. This is largely driven by the kWh reduction value of the DSM measure being evaluated. Therefore, it is to be expected that, because the TRC screening path allows more high kWh reduction DSM measures to survive the screening, as the years-to-payback criterion is changed from 1 year to 2 years to 3 years, more DSM measures from the TRC screening path will fail to survive the years-to-payback screening test than from the RIM screening path.

Q. What fuel cost forecast, and what years-to-payback criterion, is FPL basing its proposed DSM Goals on and why?

A. FPL is basing its proposed DSM Goals on analyses that used the Medium fuel cost forecast and a 2-year criterion for the years-to-payback screening test. In

regard to the fuel cost forecast, it is only practical to set DSM Goals using a single fuel cost forecast. Using the Medium fuel cost forecast is the logical choice because it presents a reasonable middle ground regarding future fuel costs. In regard to the years-to-payback criterion, FPL believes that the 2-year criterion is an appropriate threshold with which to address the free riders issue. FPL witness Deason discusses this issue in more detail in his direct testimony

Q. What were the forecasts for future fuel and environmental compliance costs that FPL used in the analyses?

A. A summary of the forecasts for fuel costs and environmental compliance costs used in the preliminary economic screening of the individual DSM measures, and in all other analyses that will be discussed in the remainder of this testimony, are presented in Exhibit SRS-7.

Q. Please discuss the CO_2 compliance cost forecast values in Column (8) of Exhibit SRS-7.

A. This forecast is a "composite" CO_2 cost forecast based on separate CO_2 cost forecasts from FPL and Duke Energy Florida. The creation of a composite CO_2 forecast allows both Duke Energy Florida and FPL (the only FEECA utilities performing a w/CO_2 sensitivity analysis) to utilize a single CO_2 compliance cost forecast in the DSM Goals analyses as directed in Order No. PSC-13-0386-PCO-EU. This composite forecast was developed by essentially taking the annual CO_2 compliance cost values from each company's current CO_2 cost forecasts, summing these two values, and dividing by two. This

created a new set of projected CO_2 cost values for each year for use in this docket.

Q. After determining the number of DSM measures that survived this series of preliminary screenings, was any other information developed for each of the surviving measures?

A. Yes. For each surviving DSM measure, a maximum incentive payment that could be paid by FPL was developed. For each measure that survived the RIM screening path, the maximum incentive was the payment that allowed the measure to pass the RIM test, the Participant test, and the years-to-payback test using a 2-year criterion. For each measure that survived the TRC screening path, the maximum incentive was the payment that allowed the measure to pass the Participant test and the years-to-payback test using a 2-year criterion. (Again, the TRC screening test does not account for incentive payments.)

At this point, Step 3 of the resource planning process has been completed and FPL has identified DSM measures that survived preliminary economic screening and the maximum incentives that can be paid for those measures.

Q. Please briefly describe the next step in analyzing individual DSM measures.

A. The next step (Step 4) in the analyses of individual DSM measures is the development of the projected Achievable Potential for each surviving DSM measure. For each measure that survived the preliminary screening using

either the RIM or the TRC screening paths, the measure's maximum incentive payment is used to develop a projection of maximum annual market penetration for each year in the 2015-2024 time period. FPL witness Koch discusses the determination of the DSM Achievable Potential, and presents the results of those analyses, in his direct testimony.

The sum of the annual Achievable Potential values for all surviving DSM measures represents the maximum contribution, in terms of MW reduction, that DSM can make each year towards meeting FPL's resource needs. Once the annual resource needs, and the annual contribution DSM can make towards meeting those needs, are known, a "With DSM" resource plan(s) that includes a DSM portfolio can be developed for more detailed system analyses.

Q. Would it be appropriate to stop at this point and propose or set DSM Goals based only on this information?

A. No. It would be inappropriate to propose or set DSM Goals at this point, or at any other interim step in the 6-step process, for at least two reasons. First, FPL is required to propose DSM Goals based on its most recent resource planning process. FPL's resource planning process consists of 6 steps. At this point only 3 of the 6 analytical steps have been conducted. Therefore, if FPL were to propose DSM Goals at this point it would be violating this requirement because only half of its resource planning process has been completed at this point.

Second, and more importantly, if DSM Goals were to be proposed or set at this point, or at any other interim step, it would mean that DSM Goals were being set with far less than a complete set of information. The objective of FPL's 6-step resource planning process is to ensure that a detailed, complete system analysis of potential DSM measures is conducted. At this point, Step 3 of the 6-step process, a number of important considerations have not yet been accounted for including: (i) FPL's resource needs over the 10-year Goals-setting time period; (ii) analyses to determine the most economic DSM measures from among the DSM measures that survived the preliminary economic screenings (i.e., a competition among the DSM measures themselves); (iii) the creation of one or more DSM portfolios and With DSM resource plans based on FPL's resource needs and the results of this DSM measure "competition"; (iv) system economic analyses involving resource plans with and without DSM portfolios; and (v) system non-economic analyses of these same resource plans.

This information will be provided in the remaining steps in FPL's resource planning process. This not-yet-provided information is much more important to making an informed decision regarding the selection of resource options, whether Supply or DSM, than are the results of preliminary screening evaluations.

Therefore, if the objective is to set DSM Goals using a complete set of information – as should be the case for a decision regarding any type of resource option – then it would be inappropriate to propose or set DSM Goals with only the information that has been discussed to this point.

V. STEP 5 OF FPL'S PLANNING PROCESS: DEVELOPMENT OF THE RESOURCE PLANS

Q. Would you please provide a projection of FPL's annual resource needs for each year in the 2015-2025 time period?

A. Yes. That projection is provided in Exhibit SRS-8. The projection uses the same assumptions previously discussed: FPL's October 2013 load forecast, current assumptions related to FPL's generating system, and no incremental DSM signups after December 31, 2014.

Column 10 provides projections of resource needs based on FPL's 20% total reserve margin criterion if those needs are met solely by Supply options. Then, by accounting for the 20% total reserve margin criterion, Column 11 provides projections of resource needs if those needs are met solely by DSM options. As expected due to the 20% total reserve margin criterion, the projected resource needs if met solely by DSM options are 20% smaller than the projected needs if met solely by Supply options.

The projected resource needs are based on the calculation of total reserve margins for both Summer and Winter. Due to higher projected generating capability (because of colder ambient air and water temperatures) and lower forecasted loads in Winter, FPL projects no additional Winter resource needs in this time frame. Therefore, the magnitude and timing of FPL's overall resource needs are being driven by the Summer total reserve margin. (Note that Exhibit SRS-8 also provides a projection of FPL's GRM in Column 9. I will return later in my testimony to discuss projected GRM in regard to the development of resource plans.)

The key information presented by this exhibit is that, assuming no DSM incremental signups after 2014 and no generation additions/changes other than those previously mentioned. FPL begins to have resource needs in the year 2018. The projected Summer MW need for 2018 is quite small: 36 MW of Supply MW or 30 MW of DSM MW. The projected need increases to 1,094 MW (Supply) or 911 MW (DSM) in 2019.

The projected need further increases through the years 2020 and 2021. Then, due to the planned addition of the new Turkey Point Units 6 & 7 in 2022 and 2023, respectively, the projected need decreases in those two years. Due to forecasted increasing peak load, FPL's projected needs further increase to a total of 2,403 MW (Supply) or 2,003 MW (DSM) by the year 2025.

These projections of resource needs, plus the projected DSM Achievable Potential values, were used to develop multi-year resource plans with which potential DSM levels can be analyzed in greater detail from a system perspective.

Q. Why is it appropriate to develop and use multi-year resource plans in analyses leading to the setting of DSM Goals?

A. It is not only appropriate to do this, but also necessary if one is to capture and accurately compare all of the impacts that competing resource options with different capacity amounts, terms-of-service, heat rates, types of fuel, MW and GWh reduction impacts, and costs will have on FPL's system.

For example, assume we are comparing two Supply options, Option A and Option B, that both offer the same amount of capacity. Option A has a heat rate of 7,000 Btu/kWh and is offered to FPL for 15 years. Option B has an 8,000 Btu/kWh heat rate and is offered for 20 years. Evaluating these options from a resource plan perspective allows one to capture the economic impacts of both the heat rate and term-of-service differences. The lower heat rate of Option A will allow it to be dispatched more than Option B, thus reducing the run time of FPL's existing units more than will Option B. This results in greater production cost savings for Option A. However, Option B's longer term-of-service means that it defers the need for future generation for a longer period. Therefore, Option B will provide capacity avoidance benefits for more years than will Option A.

Only by taking a multi-year resource plan approach to the evaluation can factors such as these for competing Supply options be captured and effectively compared. In the case of DSM options, there are similar somewhat contradicting impacts upon the utility system. For example, the GWh reduction effect of DSM lowers the amount of energy that must be served, but the MW reduction effect of DSM is designed to defer/avoid the addition of new generating units that, if added, may significantly improve the fuel efficiency of the utility system. Consequently, one aspect of DSM (GWh reduction) can decrease system fuel usage, but the other aspect of DSM (MW reduction) will avoid the addition of fuel-efficient new units that would have also lowered system fuel usage if the DSM options had not been implemented, thus increasing system fuel usage.

Once again, only by taking a multi-year resource plan approach to the evaluation can these contradicting impacts of DSM upon the utility system be properly captured and compared.

Q. Using these projected resource needs, what was the Supply Only resource plan developed by FPL?

A. The Supply Only resource plan consists of the following generation additions for the 2018 through 2025 time period (in addition to the five generation system additions/changes previously discussed):

– A 36 MW PPA is added in 2018;

– A new CC of 1,269 MW (Summer) is added in 2019;

– A 308 MW PPA for two years is added for 2020 and 2021;

– An 84 MW PPA for one year is added in 2024; and,

– A second new CC of 1,269 MW (Summer) is added in 2025.

Q. What were the Achievable Potential values for DSM and how does this DSM potential match up with FPL's projected resource needs?

A. The results of the Achievable Potential evaluation, which are discussed in detail in FPL witness Koch's direct testimony, now become inputs for the resource planning process. Exhibit SRS-9 presents the projected total annual Achievable Potential Summer MW for DSM measures identified under either the RIM screening path (Column 1) or the TRC screening path (Column 2). These annual DSM potential Summer MW values are also compared to the annual resource need projections, if the resource needs are met solely by DSM options, which are carried over from Column 11 in Exhibit SRS-8 and presented here in Column 3.

Q. Are the Achievable Potential values shown in Exhibit SRS-9 based on the projections for the DSM measures that survived the "w/o CO_2" base case screening or the DSM measures that survived the "w/CO_2" sensitivity screening?

A. The Achievable Potential values shown in this exhibit are based on DSM measures that survived the "w/o CO_2" screening. As previously mentioned, FPL analyzed both sets of DSM measures in regard to the projected Achievable Potential. These analyses showed there was relatively little difference in the respective Achievable Potential MW: 526 MW (RIM

screening path) and 576 MW (TRC screening path) that survived the "w/o CO_2" screening, and 508 MW (RIM screening path) and 577 MW (TRC screening path) that survived the "w/CO_2" screening. Due to these similarities, and the instruction provided by PSC-13-0386-PCO-EU to use a "w/o CO_2" assumption as a base case for proposing DSM Goals, FPL used the DSM measures that survived the "w/o CO_2" screening in all remaining analyses.

Q. What are the key points presented in Exhibit SRS-9?

A. There are two key points. First, as previously mentioned in this testimony, and noted in FPL witness Koch's direct testimony, the differences between the Achievable Potential Summer MW values for DSM measures emerging from the RIM screening path or the TRC screening path are also relatively small. This is seen in Columns 1 and 2 of the exhibit. Second, as indicated in Columns 4 and 5, there is sufficient Achievable Potential DSM to meet the very small (30 MW) need in 2018, but there is not enough Achievable Potential DSM Summer MW from either the RIM screening path or the TRC screening path to meet FPL's resource needs again until the year 2023. Nor is there sufficient Achievable Potential DSM to meet FPL's resource needs in 2024.

Q. What does this mean in regard to creating a DSM portfolio that will be part of a With DSM resource plan?

A. It means that one or more Supply options will need to be added in the year 2019 in order to meet FPL's resource needs for 2019. This addition of a Supply option in 2019 will also reduce FPL's projected remaining resource

needs from the projected resource need values for 2020 – 2024 presented in Exhibits SRS-8 and SRS-9.

For example, returning to Exhibit SRS-8 and looking at Columns 10 and 11 for the year 2020, a resource need of 1,512 MW (Supply) or 1,260 MW (DSM) is presented. However, if a new CC unit of 1,269 MW (Summer) is added in the year 2019 to meet the 2019 resource need, the projected remaining resource need for the year 2020 will be reduced to 243 (= 1,512 – 1,269) MW (Supply). The equivalent DSM MW value would become 203 MW (= 243/1.20) In this case, 203 MW of DSM could fully meet the remaining resource need in the year 2020 (if we temporarily set aside the question of whether this DSM addition is desirable from economic, non-economic, and reliability perspectives).

In the 2015-2024 goals-setting years, FPL's largest resource need is projected in the year 2021: 1,577 MW (Supply) or 1,314 MW (DSM). The addition of a CC unit in 2019 would also reduce the remaining resource need for the year 2021 to 308 MW Supply (= 1,577 – 1,269) or 257 MW DSM (= 308/1.20) . In other words, assuming a CC unit is added in the year 2019 to meet the 2019 resource need, 257 MW of DSM by 2021 would meet the projected remaining resource needs for the years 2020 and 2021.

Furthermore, because the resource need in 2021 is larger than the resource need for the remaining years of 2022 through 2024 in the goal-setting period, 257 MW of DSM added by 2021 would also meet FPL's remaining resource needs through the year 2024. In other words, assuming a CC unit is added in 2019 to meet the large 2019 resource need, there would be no more need for any DSM additions in the years 2022 through 2024 once 257 MW of DSM is implemented by 2021.

In light of this, FPL chose to expand its analysis of resource needs to include the year 2025. This increases the resource need that DSM signups during 2015-2024 might reasonably address.

Q. Please describe the With DSM resource plans that were developed for further analyses.

A. The With DSM resource plans that were developed and analyzed are presented in Exhibit SRS-10 along with the Supply Only resource plan. For each of these resource plans, the following information is provided for the 2015-2025 time period: (i) specific generation additions, (ii) cumulative DSM Summer MW additions, (iii) annual total reserve margin values, and (iv) annual GRM values.

Q. Please discuss how FPL developed the RIM 337 MW and TRC 337 MW resource plans, while ensuring that the plans meet both the 20% total RM and the 10% GRM reliability criteria.

A. FPL's approach in developing these two resource plans involved three steps:

- First, if there was insufficient DSM Achievable Potential in a given year to meet the resource need based on the 20% total RM criterion, FPL added new generation in that year. This was the case for the year 2019 in which a new CC unit was added. (A CC unit is projected to be FPL's best self-build generation option for this near-term resource need.)
- Second, FPL examined the year 2025 and determined that 730 MW of capacity would be needed to exactly meet the 10% GRM in that year. A PPA of that amount was assumed to address this longer term need in 2025. The remaining resource need to exactly meet the 20% total RM in 2025, if that remaining need is met by DSM, is projected to be 337 MW of DSM. FPL then developed two DSM portfolios that would achieve 337 MW of DSM by the end of 2024 in the most economic and efficient manner using first the RIM perspective, then the TRC perspective.
- Third, FPL then inserted PPAs in the years 2020 and 2021 to ensure that the GRM criterion was met in those two years.

This approach resulted in the minimum amount of generation being added to meet the GRM criterion and the maximum amount of DSM then being added to exactly meet the remaining resource needs based on the 20% total RM criterion in 2025.

Q. Would the amount of cost-effective DSM included in the RIM 337 MW or TRC 337 MW Resource Plans have been different if FPL's Achievable Potential had been larger?

A. No. For the reasons I discuss in my testimony, FPL could not have cost-effectively accommodated more than 337 MW of DSM in the 2015-2025 period. Therefore, having a higher level of Achievable Potential would not have changed the amount of DSM in these resource plans.

Q. Did FPL develop and analyze two With DSM resource plans that do not meet FPL's GRM criterion?

A. Yes. These are the RIM 526 MW plan and the TRC 576 MW plan. These plans were primarily developed as sensitivity cases to help respond to a request from the FPSC Staff. In a mid-2013 discussion the Staff had with parties interested in the upcoming DSM Goals docket, Staff requested that, if a utility uses a type of generation-only reliability criterion, the impact of the criterion on the utility's proposed goals should be presented in the utility's testimony. Therefore, FPL decided to develop and analyze two resource plans, one RIM-based and one TRC-based, that ignored the GRM criterion.

Q. Please discuss the RIM 526 MW and TRC 576 MW sensitivity case plans and explain how they were developed.

A. These two plans both utilize the full Achievable Potential DSM that emerged from the RIM and TRC screening paths respectively, and ignore the GRM criterion. They were developed using the following three steps:

- First, if there was insufficient DSM Achievable Potential in a given year to meet the resource need based on the 20% total RM criterion, FPL added a new CC unit in that year. This was the case for the year 2019.
- Second, the full annual Achievable Potential DSM MW values were added for each year of the analysis period (without any attempt to optimize DSM measure selections or the timing of DSM additions).
- Third, FPL then inserted PPAs in appropriate amounts, one PPA value for the RIM 526 MW plan and another PPA value for the TRC 576 MW plan, in the year 2025 to supplement the total Achievable Potential DSM values so that the two plans met the 20% total RM criterion in that year.

Q. Do these two sensitivity case resource plans consistently meet the GRM criterion in the 2015-2025 period?

A. No. As shown on Exhibit SRS-10, both of these sensitivity case plans fall short of the 10% GRM criterion in the years 2020, 2021, and 2025. As a result, these two resource plans are referred to as "non-conforming" plans while the Supply Only, RIM 337 MW, and TRC 337 MW resource plans, which do meet the 10% GRM reliability criterion, are referred to as "conforming" plans.

Q. Does using the GRM criterion automatically lower the amount of DSM that can be included in a resource plan?

A. No. In fact, by itself the GRM criterion has no impact on the amount of DSM that can be included in a resource plan. However, the total RM percentage value of a resource plan is likely to increase as a result of meeting the GRM

criterion while having a high level of DSM. For example, let's look at FPL's RIM 526 MW resource plan. As noted above, it is projected to not meet the GRM criterion in the years 2020, 2021, and 2025. By adding more generation to the RIM 526 MW plan - specifically a 129 MW PPA in 2020, a 168 MW PPA in 2021, and increasing the PPA in 2025 by approximately 228 MW – one could create a new, fifth resource plan that still has 526 MW of DSM yet meets the GRM criterion in all years. But because this fifth resource plan would include an additional 228 MW of generation in 2025, the total RM would increase from 20.0% to 20.9% for that year.

Q. Were all four of these With DSM resource plans, the two that met the GRM criterion and the two that ignored this criterion, evaluated from the same economic and non-economic perspectives?

A. Yes.

VI. STEP 6 OF FPL'S PLANNING PROCESS: ANALYSES OF THE RESOURCE PLANS

Q. Please describe how the economic analysis of the Supply Only and With DSM resource plans are conducted.

A. The economic analyses of these resource plans addressed the years 2014 through 2054. A number of economic analyses are conducted and the results of these analyses are brought together. First, the P-MArea production costing model is used to develop projected annual fuel costs for the FPL system for

each resource plan. Annual variable costs for the new generation additions and system emission levels are also developed using this model. Using the projected annual emissions, annual environmental compliance costs are then developed.

Second, fixed costs (capital, fixed O&M, capital replacement, etc.) for the new generation additions in each resource plan are determined. Third, annual DSM administrative costs and incentive payments for the incremental DSM included in each resource plan are quantified in the process of developing the DSM portfolio using FPL's DSM linear programming (LP) optimization model.

Fourth, a projection of "other" FPL system costs not affected by the resource plans was determined. (Examples of these "other" system costs include costs for existing generating units, existing transmission and distribution facilities, existing buildings, staff, etc.) Fifth, a projection of "other DSM costs" for the Supply Only and With DSM resource plans was developed. These "other DSM costs" include costs not directly tied to any individual DSM measure, but which will be incurred as part of a DSM portfolio. (Examples of such costs include energy surveys and on-going bill credits to existing load management participants.)

Sixth, the impact of DSM energy efficiency measures in helping FPL address the Southeastern Florida generation-to-load imbalance was calculated. This consisted of projecting the extent to which the DSM energy efficiency measures in the DSM portfolio might potentially defer transmission expenditures that would otherwise be needed to bring electricity generated outside of the Southeastern Florida region into the region. Finally, the annual GWh reductions by which DSM reduces the annual number of GWh over which FPL recovers its costs are determined.

The above information is then used to calculate a levelized system average electric rate for each resource plan. This electric rate metric is used as the primary economic basis by which the resource plans, and the amount of DSM included in each resource plan, are evaluated.

Q. What were the results of the economic analysis of the resource plans?

A. The results of the economic analyses of the resource plans are presented in Exhibit SRS-11 which provides the projected levelized system average electric rate for each resource plan. In addition, Exhibit SRS-11 also states whether each resource plan will result in one group of customers subsidizing other groups of customers in regard to the resource plan's effect on electric rates. This important consideration is referred to as cross-subsidization of different groups of customers.

Q. Would you please discuss the results presented in Exhibit SRS-11?

A. Yes. The three conforming resource plans are first presented in order of their projected levelized system average electric rate ("system average electric rate"). The resource plan with the lowest projected system average electric rate is the RIM 337 MW plan. The Supply Only plan is projected to have the next lowest system average electric rate. The TRC 337 MW plan has the highest projected system average electric rate by a substantial margin.

Exhibit SRS-11 also indicates whether each resource plan will avoid the cross-subsidization of one customer group by another. In the absence of the RIM 337 MW plan, the Supply Only plan would avoid cross-subsidization because all customers "participate" when generation options are placed in-service. In addition, the Supply Only plan has the next lowest system average electric rate. However, the RIM 337 MW plan is projected to have an even lower system average electric rate than the Supply only plan so the RIM 337 MW plan best avoids cross-subsidization of customers and produces the lowest system average electric rate. Because the TRC 337 MW plan results in higher system average electric rates than either the RIM 337 MW or Supply Only plan, the TRC 337 MW plan will result in the cross-subsidization of customers. I will return to the issue of cross-subsidization later in my testimony.

At the bottom of this exhibit, projected system average electric rates and cross-subsidization information is also presented for the two resource plans that do not conform to FPL's GRM reliability criterion. As indicated from this information, both of these plans are projected to result in higher system average electric rates than either the RIM 337 MW plan or the Supply Only plan. In addition, neither of these two non-conforming plans is projected to avoid cross-subsidization.

Q. Why is it not appropriate to evaluate the five resource plans on the basis of the total costs of the plans?

A. An evaluation of system costs alone would provide incomplete information regarding direct economic impacts to FPL's customers when analyzing DSM options versus Supply options.

As discussed previously in my testimony, it is acceptable to conduct analyses of competing Supply options on a total cost basis (such as cumulative present value of revenue requirements) because in such a case a total cost analysis equates to an electric rate analysis. This is due to the fact that the number of GWh over which the system costs are recovered does not change when only Supply options are being evaluated. Therefore, the lowest cost plan will also be the lowest plan in terms of levelized system average electric rates.

However, when evaluating DSM options versus Supply options, or different levels of DSM options, the number of GWh over which the system costs are

recovered does change when considering the DSM options. Therefore, an evaluation of only total system costs in such a comparison of Supply versus DSM options, or different levels of DSM options, cannot determine which option results in the lowest electric rates that will be charged to all customers. One needs to account for the number of GWh over which the system costs will be recovered in order to determine the option that results in the lowest electric rates. FPL has used exactly this approach in its calculation of levelized system average electric rates for the five resource plans.

Q. How is the levelized system average electric rate for a resource plan calculated?

A. Exhibit SRS-12 presents the calculation of the levelized system average electric rate for one of the resource plans, the RIM 337 MW resource plan. The calculation consists of three basic steps. First, the projected annual revenue requirements and annual GWh served are used to calculate a projected system average electric rate for each year as shown in Column 9. Second, each of these projected annual electric rates is present valued and these present values are summed in Column 10. Third, an annual electric rate value is developed in Column 11 that, when held constant in each year, with these values present valued and summed, has an identical present value sum in Column 12 to that of the present value sum in the second step. This constant electric rate value is the levelized system average electric rate for this resource plan. Levelized system average electric rates for each of the other four resource plans were calculated in the same manner.

Q. Are the differences in the levelized system average electric rates between the three conforming resource plans presented in Exhibit SRS-11 meaningful?

A. Yes. The significance of these differences is perhaps most readily seen by determining the amount of additional cost that would need to be incurred to raise the levelized electric rate of 11.7412 cents/kWh for the RIM 337 MW plan to the levelized electric rate for another plan such as the TRC 337 MW plan's levelized electric rate of 11.7579 cents/kWh.

In terms of a one-time additional cost, the RIM 337 MW plan would have to incur an additional cost of approximately $296,000,000 in 2015, or of approximately $630,000,000 in 2024, in order to raise its levelized electric rate to match that of the TRC 337 MW plan. This latter calculation is presented in Exhibit SRS-13.

As evidenced by this example, the levelized system average electric rate differences are meaningful, and the RIM 337 MW plan's advantage is significant.

Q. Was a projection made of electric rates and customer bills for the 10-year Goal-setting period for each resource plan?

A. Yes. Exhibit SRS-14 presents the projected annual electric rates, and the projected bills corresponding to a usage of 1,200 kWh, for the three conforming resource plans for the years 2015-2025. (The results for the two

non-conforming sensitivity case plans that are based on DSM portfolios consisting of the full Achievable Potential DSM under the two screening paths are also presented.) Also included in this exhibit is the projection of the differentials in the customer bills between each With DSM resource plan and the Supply Only plan. The results of these projections can be summarized as follows:

- Higher electric rates and customer bills are projected for each year from 2015 through 2024 for each of the four DSM-based resource plans compared to the Supply Only plan which is projected to have the lowest electric rates and customer bills for each of the 10 years in the goals-setting period. This is due to the fact that although the four DSM-based resource plans will have reduced certain costs (such as fuel), DSM will not have avoided any large-scale Supply option addition during this time period. Conversely, the DSM additions will both reduce the number of GWh over which FPL's revenue requirements will be recovered and DSM administrative and incentive costs will have been incurred.
- Only in the year 2025, when the Supply Only resource plan adds a CC unit that is deferred by the four With DSM resource plans, does this picture change. All four With DSM plans are projected to result in lower electric rates in the year 2025 than with the Supply Only resource plan. The RIM 337 MW resource plan is projected

to have the lowest electric rates and lowest customer bills in 2025 of all five plans. Compared to the RIM 337 MW resource plan, the remaining With DSM plans' electric rates and customer bills are higher in 2025 than the RIM 337 MW plan (although lower in the year 2025 than the Supply Only plan).

In comparing the two conforming With DSM resource plans during 2015-2025, the RIM 337 MW plan is projected to result in the lowest electric rates and customer bills in each year. The TRC 337 MW plan is projected to result in the highest electric rates and customer bills in each year.

These results are expected. DSM additions typically put upward pressure on electric rates, and bills, in the years prior to avoiding/deferring a generating unit. This is typically seen in screening analyses of individual DSM measures. Also expected is that this near-term impact of placing upward pressure on rates and bills is minimized by DSM measures that survived the RIM screening test path. Conversely, the TRC screening test does not allow the consideration of two important cost impacts on electric rates and, because this screening test does not include all relevant DSM-related costs for a DSM measure, DSM measures that "pass" only the TRC screening test typically result in higher electric rates.

Q. Returning to Exhibit SRS-11, this exhibit presents information regarding whether the resource plans will avoid the potential for cross-subsidization of program participants by the general body of customers. Would you please discuss this further?

A. Yes. When a resource option, Supply or DSM, is selected, it will have an impact on FPL's electric rates that are charged to all customers and on the bills all customers will pay. The basic issue in regard to cross-subsidization is whether the impact of the resource selection on electric rates and bills will result in one group of customers subsidizing other customers.

For example, consider the case when FPL evaluates only Supply options. Because all customers on FPL's system are served by the Supply option if that option is chosen, all customers are "participants" in the selected Supply option. Electric rates and bills for all customers move in the same "direction"; either up or down from year to year compared to another Supply option that could be selected. Therefore, there is no subsidization of one group of customers by another group.

However, the same is not true for DSM options. With DSM options, customers have a choice to participate or not participate in DSM options for which they are eligible. Furthermore, customers cannot participate in DSM options they are ineligible for, or in measures which they may have already installed. This leads to an additional, and important, consideration of how

different groups of customers, participants and non-participants, are impacted when DSM options are selected. If the utility chooses a DSM option that places upward pressure on electric rates compared to another DSM option, the result will be the formation of two groups of customers: one group of "losers" who do not, or cannot, participate in the first DSM option and who face higher electric rates and bills, and one group of "winners" who can and do, participate in the first DSM option and, through reduced usage, reduce their bills (even though electric rates will have increased due to the first DSM option being offered by the utility).

This outcome is undesirable because one group of customers (the non-participants) subsidizes the other group of customers (the participants) through higher electric rates caused by the imposition of the first DSM option; i.e., there is a cross-subsidization of one customer group by another.

Avoiding this undesirable outcome is accomplished by accounting for the effect on electric rates when selecting DSM options. Accounting for this requires at least three important considerations.

Q. Please discuss what these three considerations are.

A. The first consideration is which DSM screening test is used to perform preliminary screening of DSM measures. Because the RIM screening test correctly accounts for all DSM-related cost impacts that will affect electric rates, it does a much better job of screening out DSM measures that are likely

to put upwards pressure on electric rates if those measures are implemented. Conversely, because the TRC screening test does not account for all DSM-related cost impacts that affect electric rates, certain DSM measures "pass" the TRC screening test that do not pass the RIM screening test. If these DSM measures are then incorporated into a DSM portfolio, that portfolio will result in higher electric rates. Non-participants in those DSM measures will pay higher bills due to the higher electric rates than if either the competing Supply option or RIM-based DSM had been chosen.

Therefore, the use of TRC-based DSM measures results in "winners" (participants in TRC-based DSM measures) and "losers" (all other customers) among a utility's customers. Thus the choice of the preliminary screening test used in DSM analyses can result in cross-subsidization among FPL's customers.

The second consideration is to match the amount, and the timing, of DSM MW additions to the utility's actual resource needs. This is important because much of DSM's net benefits are due to avoiding or deferring new generation additions that would otherwise be added. Only by matching, or "targeting," the DSM MW to the specific FPL resource need MW in specific years will generating units be efficiently avoided or deferred by DSM. In regard to meeting a specific annual resource need target, if too few DSM MW are planned, FPL will need to incur the cost of a Supply option to make up the

resource need shortfall. Conversely, if more DSM MW are planned than what is needed to avoid or defer generating resources, then unnecessary DSM costs for the excess DSM MW are incurred. In either case, DSM is not being efficiently planned and these additional costs will result in higher electric rates for FPL's customers.

The third consideration is to determine the optimum "mix" of DSM measures with which to meet the utility's annual resource needs. The preliminary economic screening of individual DSM measures is an important step, but in essence all it does is develop a list of DSM measures that survived a preliminary screening evaluation. What is missing at the end of this early screening step is an evaluation of which of the DSM measures should be selected, and in what annual amounts, to meet the utility's resource needs in the most efficient and economical way.

FPL accomplishes this optimization by using a linear programming (LP) approach to select DSM measures so that specific annual resource need targets are met most economically. One can correctly think of this as conducting a competition among all DSM measures to earn a role in FPL's DSM portfolio. This ensures that the most economically competitive DSM measures are selected for the portfolio.

Therefore, by FPL selecting DSM options using these three considerations, cross-subsidization of customers is avoided. This is shown in Exhibit SRS-11 by the fact that the projected levelized electric rate for the RIM 337 MW plan is the lowest of any of the plans and the projected levelized electric rates for the TRC plans are the highest. The RIM 337 MW DSM portfolio was developed using all three considerations just discussed while the TRC plans ignored one or more of these considerations.

Q. Would you please describe how the LP analyses of individual DSM measures are carried out in order to create a DSM portfolio?

A. Yes. The LP model evaluates all individual DSM measures that survived the preliminary screening paths, using the corresponding annual Achievable Potential MW for each DSM measure, to determine which combination of DSM measures meets an "objective function" after meeting all necessary constraints. The result is an optimized mix, or portfolio, of DSM measures that meet the constraints.

In these LP analyses, the objective function is to minimize the present value of the DSM-related net costs of a DSM portfolio that are applicable to the specific screening test in question, RIM or TRC. The DSM-related net costs are derived by first calculating all of the DSM cost impacts that are applicable to the specific screening test in question, then subtracting out certain system costs that will be avoided by DSM but which may vary from the analysis of one DSM measure to another. These system avoided costs represent a subset

of the potential benefits projected for a DSM measure and include: emission and fuel costs avoided by the kWh reduction aspect of a DSM measure, and transmission capital and O&M fixed costs that are avoided by the kW reduction aspect of a DSM measure. The LP's solution is the DSM portfolio that results in the lowest present value of these DSM-related net cost impacts while meeting applicable constraints on the solution.

Q. How would you summarize the economic analyses results?

A. Two results from the economic analyses stand out. First, the RIM 337 MW resource plan meets FPL's resource needs through 2025 while providing the lowest system average electric rates over the analysis period and the lowest electric rates of any of the With DSM-based resource plans for each year in the 2015-2025 time period. Second, the RIM 337 MW plan meets FPL's resource needs while avoiding cross-subsidization of one customer group by another.

These two factors combine to make the RIM 337 MW plan the best resource plan from an economic perspective.

Q. What different perspectives of the FPL system were considered in the non-economic analysis?

A. The non-economic analysis focused on two perspectives that address the years 2015-2025. The first perspective is a direct comparison of projected annual SO_2, NO_x, and CO_2 emissions for the FPL system for each of the resource plans. The second perspective is a direct comparison of projected annual FPL

system oil and natural gas usage for the resource plans. These analyses addressed both the three conforming resource plans and the two non-conforming resource plans.

Q. Would you please present the results of the non-economic analyses?

A. Yes. The results of the non-economic analyses are presented in Exhibits SRS-15 and SRS-16. These results can be summarized in two points.

First, there are only relatively small differences in regard to projected system emissions and system fossil fuel use among the five resource plans. Two examples demonstrate this.

In regard to projected system SO_2 emissions (in terms of thousand tons for SO_2 and NO_x, and in terms of million tons for CO_2) for the five resource plans, Exhibit SRS-15 shows that for the year 2019 (in the middle of the DSM Goals-setting time period), the projected SO_2 system emissions for that year for the five resource plans are all 8.1. A similar result is projected for the year 2024 (the last year of the DSM Goals-setting time period) with values varying only slightly: from 6.6 to 6.7. Similar narrow ranges among the five resource plans are also projected for both NO_x and CO_2.

In regard to projected system oil and natural gas usage levels (measured in millions of mmBtu) presented in Exhibit SRS-16, there are again only relatively small differences between the projected fuel usage levels for the

five resource plans. The projected results for the year 2019 range vary only slightly: from 2.4 to 2.5 for oil, and from 577.4 to 580.5 for natural gas. Only slight variations are again projected for the year 2024: from 1.6 to 1.8 for oil, and 509.1 to 515.6 for natural gas.

Q. Do Exhibits SRS-15 and SRS-16 provide any other important information regarding the FPL generation system and the potential impact of DSM resources?

A. Yes. There are two other important pieces of information that are either provided by these exhibits, or which should be kept in mind when considering the results shown in these two exhibits.

The first of these is that, by looking at the projected annual system emissions from 2015 through 2025 in Exhibit SRS-15, it is apparent that FPL's generating system is projected to steadily lower FPL's system air emissions over this time period. This is projected to occur despite continued customer growth. For example, for the Supply Only resource plan, the projected SO_2 values decrease from 11.6 in 2015 to 4.8 in 2025. The projections for the Supply Only resource plan were similar for NO_x, decreasing from 8.8 (2015) to 5.2 (2025), and for CO_2, decreasing from 46.0 (2015) to 39.7 (2025).

Projections of system oil and natural gas usage levels for the Supply Only plan show similar results of decreasing fuel usage levels. Again, this is projected to occur despite significant customer growth. The comparable

projections for the Supply Only resource plan for oil usage are: 7.4 (2015) decreasing to 1.3 (2025), and for natural gas: 544.7 (2015) decreasing to 531.7 (2025).

These projected trends for the Supply Only resource plan are due to continued fuel-efficiency gains in how FPL's generating system utilizes fossil fuels and the use of cleaner fuels including the planned addition near the end of the 10-year Goals-setting period of the Turkey Point 6 & 7 nuclear units.

Therefore, FPL's customers will benefit from projected decreases in system fuel usage and emissions regardless of whether the Supply Only or With DSM resource plans are implemented. None of the four With DSM plans will significantly increase the improvements in system fuel and system emissions that are projected to be realized by continuing efficiency enhancements of FPL's generating system.

Q. What is the second important piece of information regarding the results shown in Exhibits SRS-15 and 16?

A. The second, and perhaps the most important point in summarizing the results of the non-economic analyses, is to note that the economic impacts of the projected fuel usage and SO_2 and NO_x emissions for each of the five resource plans have already been accounted for in all of the economic analyses discussed previously. Thus, whatever the differences are between these plans in regard to these emissions and fuel usage (and these differences are

relatively slight as discussed above), the economic impacts of these differences have already been accounted for in the economic analyses.

Q. Based on these results, which DSM portfolio should be the basis for FPL's DSM Goals?

A. For the reasons discussed above, the RIM 337 MW portfolio should be the basis for FPL's DSM Goals for the 2015-2024 time period. FPL witness Koch will present a breakdown of this 337 MW DSM portfolio into annual Summer MW, Winter MW, and GWh contributions in his direct testimony. In addition, his testimony will further break down these contributions by residential and commercial/industrial customer categories.

VII. RESOURCE PLANNING PERSPECTIVES REGARDING FPL'S PROPOSED DSM GOALS

Q. The 337 MW (Summer) DSM Goals FPL is proposing in 2014 are lower than the 664 MW (Summer) that FPL proposed as its DSM Goals in 2009. Why do the current resource planning analyses led to lower proposed Goals?

A. The primary reason is that utility DSM resources are now projected to be significantly less cost-effective compared to generation resources than has been the case in the past. There are a number of factors that each contribute to DSM being less cost-effective now than was the case in the last DSM Goals docket in 2009. A few of the more significant factors include the following:

1) significant increased impacts of energy efficiency codes and standards;

2) lower forecasted fuel costs;

3) increased FPL generating system efficiency;

4) changes in forecasted CO_2 compliance costs; and,

5) changes in projected firm gas transportation incremental volumes and the associated costs.

Q. Would you please comment on each of these five factors?

A. Yes. My comments on each of these factors are as follows:

1) Significant increased impacts of energy efficiency codes and standards:

In 2009 FPL's customers were projected to receive approximately 1,255 MW (Summer) of peak demand reduction during the 10-year period from 2010 through 2019 (the last year of the then 2010-2019 Goals-setting period) due to codes and standards. In comparison, FPL's customers are now forecasted to receive approximately 1,823 MW (Summer) of peak demand reduction during the 10-year period from 2015 through 2024 due to codes and standards. In addition, the projected impact from codes and standards on energy use for the current goals-setting period is also very large: 5,547 GWh of reduced energy usage. As discussed in FPL witness Koch's direct testimony, this change in the impact of codes and standards substantially lowered the technical potential "starting point" for the Goals analyses and directly affected specific electrical equipment – such as residential air conditioners – that have long been a mainstay of prior FPL DSM Goals filings (and FPL's DSM programs.) As a

result, the Technical Potential, and subsequent Achievable Potential, for DSM have been lowered.

2) Lower forecasted fuel costs:

Current forecasted fuel costs are much lower than those forecasted in 2009. This can be seen by comparing the 2009 and current forecasted costs ($/mmBtu) for natural gas for three specific years within the current 10-year Goal-setting period (2015, 2019, and 2024):

Year	2009 Forecast	Current Forecast
2015	$9.64	$4.26
2019	$12.63	$6.15
2024	$14.39	$7.34

As shown from these values, natural gas prices are currently forecast to be approximately only 50% of what they were forecast to be in 2009 when FPL last filed for proposed DSM Goals. Lower forecasted natural gas costs are a very good thing for FPL's customers, but lower fuel costs also result in lower potential fuel savings benefits from the kWh reductions of DSM measures. Lower kWh reduction-based benefits result in two general impacts in regard to DSM analyses: (i) fewer DSM measures survive the preliminary economic screening, and (ii) lower incentive payment amounts are available to those

DSM measures that survive the screening. Both of these impacts result in lower DSM Achievable Potential values.

3) Increased FPL generating system efficiency:

FPL's generating system has steadily gotten more efficient in regard to its ability to generate electricity using less fossil fuel. One indication of this is the metric of system average heat rate for FPL's fleet of fossil fueled generating units. In the year 2001, this heat rate was 9,635 Btu/kWh. By 2012, this heat rate had decreased to 7,669 Btu/kWh which represents a 20% improvement in generating efficiency. In other words, it took 20% less fossil fuel to generate the same number of kWh in 2012 than it did in 2001. This is a truly significant achievement for any utility system, but particularly so for a generating system as large as FPL's. This improvement in system heat rates from 2001 to 2012 was driven primarily by the addition of modern CC units (such as at the Martin, Manatee, West County, and Turkey Point sites).

In regard to the most recent DSM Goals analysis year of 2009, the fossil fueled generation heat rate in that year was 8,232 Btu/kWh which improved to 7,669 Btu/kWh by 2012. Additional significant improvement in the system heat rate of the fossil fueled generating unit fleet is also projected to result from the on-going modernization of existing plant sites (such as at Port Everglades) as old steam-fired generating units are replaced with modern CC

units and by the additional nuclear capacity recently added at the Turkey Point and St. Lucie sites through the successful capacity uprates project.

In 2009, the modernization of the Port Everglades site was not yet included in FPL's resource plan. Therefore, the additional system fuel efficiency gains from that modernization project were not assumed in the 2009 DSM Goals analyses work. Neither was the full amount of additional nuclear capacity actually delivered from the nuclear uprates project (approximately 520 MW, or 30% more, instead of the then-assumed 399 MW) assumed in the 2009 DSM Goals analyses. All of these actual and projected supply side efficiencies have been fully incorporated into FPL's resource planning process and are accounted for in the analyses discussed in my testimony.

The improvements in generating system efficiency affect DSM in much the same way that lower forecasted fuel costs do: the potential fuel savings benefits from the kWh reduction impacts of DSM have been further reduced. Both lower forecasted fuel costs and greater generating efficiency serve to lower marginal fuel costs that DSM's kWh reduction can remove from FPL's system. Both of these factors result in fewer DSM measures surviving the preliminary economic screening and in lower incentive payment amounts for those DSM measures that survive the screening. In turn, these two impacts result in lower DSM Achievable Potential values.

4) Changes in forecasted CO2 compliance costs:

In 2009 FPL used its then current forecast of CO_2 compliance costs in its DSM Goals analyses. The CO_2 compliance costs forecasted in 2009 were significantly higher than the current sensitivity case forecast of these costs. This can be seen by comparing the 2009 and current forecasted CO_2 compliance costs ($/ton) for the same three specific years discussed above (2015, 2019, and 2024):

Year	2009 Forecast	Current Forecast
2015	$17	$0
2019	$25	$0
2024	$39	$17

While lower forecasted CO_2 compliance costs are again a good thing for FPL's customers, lower compliance costs also result in lower compliance cost savings benefits from the kWh reductions of DSM measures. This again results in fewer DSM measures surviving the preliminary economic screening and in lower incentive payment amounts for those DSM measures that survive the screening. In turn, this results in lower DSM Achievable Potential values. (In addition, the current forecast of low CO_2 compliance costs also explains why there was relatively little difference between the number of DSM measures that survived the "w/o CO_2" and "w/CO_2" preliminary screenings discussed earlier.)

5) Changes in projected firm gas transportation incremental volumes and the associated costs:

In regard to projected firm gas transportation incremental volumes and the associated costs projections, there has also been a significant change in these projections from projections in 2009. In 2009, the assumption was that each new CC unit added to FPL's system would need sufficient new firm gas transportation volume to fully fuel the new CC capacity. However, the amount of committed firm gas transportation volume that has already been committed to in association with the new gas pipeline, 400,000 mmBtu/day beginning in May 2017 and an additional 200,000 mmBtu/day beginning in May 2020, means that smaller incremental volumes of new gas will be needed for new CC capacity in the years immediately following those two additions. Furthermore, these smaller new gas volumes will not be needed as soon as the new CC capacity goes in-service, and the $/mmBtu cost of the additional firm gas transportation has also decreased from 2009 projections. Consequently, the projected total cost of firm gas transportation that is avoided or deferred when the kW reduction aspect of DSM avoids or defers a new CC unit has significantly decreased from what was assumed in 2009. These effects are good for FPL's customers, but they also lower the economic competitiveness of DSM options which, in turn, leads to lower DSM Achievable Potential values.

Each of these five factors discussed above is good for FPL's customers because they lower FPL's costs and electric rates and/or enhance system reliability. In addition, all of these five factors contribute to lowering FPL's proposed DSM Goals amounts primarily because they lower DSM cost-effectiveness by lowering costs that otherwise could have potentially been avoided or deferred by DSM measures.

Q. From a resource planning perspective, are FPL's proposed DSM Goals reasonable?

A. Yes. The proposed goals are reasonable for a number of reasons. First, FPL is proposing goals for DSM resources that will result in the lowest electric rates. Second, the proposed DSM goals account for the 10% GRM reliability criterion that will maintain the reliability of FPL's system.

Third, FPL's customers are projected to have a very large amount of energy efficiency delivered to them during the 2015-2024 time period. The amount of energy efficiency projected to be delivered through codes and standards, 1,823 MW, and the 337 MW proposed as FPL's DSM Goals, will result in a total of 2,160 MW (Summer) of energy efficiency/DSM being delivered to FPL's customers over the 10-year Goals period. This is an even greater total amount of energy efficiency/DSM than was projected in 2009 when 1,919 MW were projected: 1,255 MW from codes and standards and 664 MW from FPL's proposed Goals. Therefore, 241 MW more (= 2,160 - 1,919) total energy efficiency/DSM, or approximately 13% more MW, are projected to be

delivered to FPL's customers during the next Goals period than was projected/proposed for the last Goals period. The delivery "mix" between codes and standards and utility DSM has changed, but the total energy efficiency/DSM projected to be delivered is substantially greater.

Fourth, as discussed above, many of the reasons why FPL's proposed DSM Goals are lower than the goals proposed in 2009 are due to reasons that result in lower costs and electric rates for FPL's customers: lower fuel costs, lower CO_2 compliance costs, increasingly greater efficiency with which FPL generates electricity, greater contributions from lower cost, zero emission nuclear fuel, etc.

Fifth, it is important to note that one should not think of the term "energy efficiency" in regard to electricity solely in terms of using electricity efficiently or using less electricity. An equally important component is generating electricity efficiently. As discussed earlier, FPL has dramatically improved the efficiency with which it generates electricity.

For all of these reasons, I believe that FPL's proposed DSM goals are both reasonable and desirable.

Q. Does this conclude your direct testimony?

A. Yes.

FPL's Resource Planning Process as Applied to DSM Goal-Setting

(Steps Presented in Approximate Sequence)

Step Number	Step Name	Description of Work Undertaken in Step
Step 1	Development of DSM Technical Potential	The theoretical Technical Potential of DSM for the 10-year time period is developed ignoring all practical constraints such as cost, market forces, contractor levels, the utility's resource needs, etc.
Step 2	Determination of FPL's Resource Needs Over the 10-Year DSM Goals Time Period	Assuming zero growth in DSM signups after 12/31/2014 (i.e., just before the start of the 10-year time period for which DSM Goals are to be set), determine what FPL's projected resource needs are for that 10-year period if resource needs are met solely by Supply resources and if met solely by DSM resources. Updated forecasts and projections for load, generation capabilities (owned and purchased), etc. are used in making these determinations.
Step 3	Preliminary Economic Screening of Individual DSM Measures and Identification of Maximum Incentive Payments	Perform preliminary economic "screening" analyses of all individual DSM measures identified in Step 1's Technical Potential work. These screening analyses consist of multiple steps and utilize the RIM test, the Participant test, the TRC test, and the years-to-payback test. For those DSM measures that survive the screening, a maximum incentive payment for that measure is determined.
Step 4	Determination of Achievable Potential for DSM	For each DSM measure emerging from Step 3, the corresponding maximum incentive payment amount is used to develop a market projection of how much of each measure can be signed up in each year of the DSM Goals 10-year time period.
Step 5	Development of Supply Only and With DSM Resource Plans	Using the projection of FPL's resource needs developed in Step 2, a resource plan consisting of no incremental DSM signups (the "Supply Only" resource plan) is developed. In addition, using the projection of FPL's resource needs, and the achievable potential for DSM from Step 4, a resource plan(s) is developed which consists of a DSM portfolio and, as needed, accompanying Supply resources (the "With DSM" resource plan).
Step 6	Analyses of Resource Plans	The Supply Only and With DSM resource plans are evaluated from both economic and a non-economic perspectives to determine the best resource plan, and the accompanying amount of DSM that FPL will propose as its DSM Goals for the 2015-2024 time period.

Excerpt from FPL's 2014 Site Plan Addressing FPL's Need for a 10% Generation-Only Reserve Margin (GRM) Reliability Criterion

The following appears in Chapter III, pages 53 to 55, of the 2014 Site Plan:

> FPL's recent integrated resource planning work has resulted in FPL's resource plans showing a significant shift in the mix of generation and DSM resources over the next 10 years in regard to the relative contribution of these resources to system reliability. In order to gauge the extent of this shift and its potential implications for FPL's system reliability, FPL developed a new metric: a generation-only reserve margin (GRM). This GRM metric reflects reserves that would be provided only by actual generating resources. The GRM value is calculated by setting to zero all incremental energy efficiency (EE) and load management (LM), plus all existing LM, in a reserve margin calculation. The resulting GRM value provides an indication of how large a role generation is projected to play in each year as FPL maintains its 20% Summer and Winter "total" reserve margins (which account for both generation and DSM resources).
>
> FPL has been reporting the GRM metric in its Site Plans since 2011 when it presented projections of its Summer GRM for the years 2011-2020. The 2011 projection showed a steady decrease in GRM values from a "balanced" 11.5% in 2011 to much reduced 7.2% by 2020. In its 2012 Site Plan, FPL's projected GRM values steadily decreased over the 10-year period from 16.2% in 2012 to 5.5% in 2021. The projected pattern in the 2013 Site Plan was similar: a steady decrease from 16.3% in 2013 to 6.9% in 2021. (The projected GRM value for 2022 presented in the 2013 Site Plan increased to 8.9% due to the planned addition of the new Turkey Point 6 nuclear unit in 2022.) Thus FPL's resource planning projections over the last 3 years have each shown a general downwards trend in projected GRM in the latter portion of this decade. This indicates increasing reliance on DSM resources, particularly EE resource additions, and decreasing reliance on generation

resources, to maintain system reliability. As a result, FPL has analyzed what impact(s) this trend could have on system reliability. Two types of evaluations were conducted. One of these evaluations is from the perspective of FPL's system operators who are responsible for operating the bulk electric system. The other evaluation is from a resource planning perspective.

The first evaluation examined what impact an increasing reliance on EE resource additions was projected to have on the amount and type of reserves that operators would have at their disposal to meet load on a system peak hour. FPL first used a "looking back" perspective at a recent actual peak load day of January 11, 2010 to see how the system actually operated. Then, assuming a "what if" situation in which the system was assumed to have been designed to have an identical total reserve margin, but higher and lower GRM respectively, FPL analyzed what the impact would have been on FPL's ability to serve its customers on that peak day with these alternative assumed systems.

FPL also performed analyses taking a "looking forward" perspective at the projected year of 2021. Three scenarios were analyzed: (i) the system with its projected GRM and total reserve margin values consistent with the 2013 Site Plan; (ii) a system with an identical total reserve margin, but a higher GRM; and (iii) a system with an identical total reserve margin, but a lower GRM. Recognizing that the impacts from EE resource additions will already have been accounted for in the peak load that system operators must react to on an actual peak day, the analyses assumed an adverse peak day situation which consisted of significantly higher load and significantly less available generation than projected. The results from both the "looking back" and "looking forward" analyses were similar. For resource plans with identical

total reserve margins, but different GRM levels, system operators were projected to have significantly higher levels (MW) of reserves, either generation and/or load management reserves, available on the peak days with a resource plan that had a higher GRM level than with a resource plan that had a lower GRM level. Thus a resource plan with a higher GRM, compared with a lower GRM, results in better system reliability for customers due to a greater likelihood of meeting customers' firm demand on peak load days, despite unexpected conditions or events. Better system reliability to customers translates to a reduced risk of shedding firm load.

The second evaluation was from the resource planning perspective of loss-of-load-probability (LOLP). For this evaluation, FPL also analyzed resource plans with identical total reserve margins, but higher and lower GRM levels. The results of these analyses for the FPL system showed that a resource plan with a higher GRM resulted in a projection of lower LOLP values than a resource plan with a lower GRM.

Based on these operational and resource planning evaluations, FPL has concluded that resource plans for its system with identical total reserve margins, but different GRM values, are not equal in regard to system reliability. A resource plan with a higher GRM value is projected to result in more MW being available to system operators on adverse peak load days, and in lower LOLP values, than a resource plan with a lower GRM value, even though both resource plans have an identical total reserve margin. Therefore, FPL has applied a minimum GRM criterion as a third reliability criterion in its resource planning process.

Based on the expertise and experience of FPL's system operators regarding the amount of generation MW needed for reliable operations, the GRM

criterion is set at a minimum of 10% for Summer and Winter. From an operational perspective, FPL believes it is necessary to have approximately 2,650 MW of generation reserves. These reserves will allow FPL to address a variety of operational considerations including: (i) unplanned generation unavailability; (ii) the deployment of real-time operating reserves to meet its 15-minute obligations as part of the Florida Reserve Sharing Group; (iii) the requirement pursuant to NERC Reliability Standards to replace with other resources within 30 minutes following the unplanned loss of a large generation unit; and (iv) higher-than-forecasted loads. The sum of the operational reserves to cover for these requirements and considerations is approximately 2,650 MW. This MW value is consistent with a 10% GRM for the foreseeable future. FPL is planning its system so that the minimum 10% GRM criterion is met beginning in the Summer of 2019.

The 10% minimum Summer and Winter GRM criterion augments the two existing reliability criteria used by FPL: a 20% total reserve margin criterion for Summer and Winter, and a 0.1 day/year LOLP criterion. The total reserve margin and LOLP criteria continue to identify the timing and magnitude of FPL's future resource needs. The GRM criterion provides direction regarding the mix of generation and DSM resources that should be added to maintain and enhance FPL's system reliability.

Economic Elements Accounted for in DSM Preliminary Screening Tests: Benefits Only

Economic Elements	Participant-Incurred Economic Impacts	Included in the Participant Preliminary Screening Test?	Utility-Incurred Economic Impacts	Included in the RIM Preliminary Screening Test?	Included in the TRC Preliminary Screening Test?
Benefits					
Generation Capital and O&M			X	Yes	Yes
Transmission Capital and O&M			X	Yes	Yes
Distribution Capital and O&M			X	Yes	Yes
Net System Fuel Impacts			X	Yes	Yes
Bill Savings by Participants	X	Yes			
Incentives Received by Participants	X	Yes			
Tax Credits Received by Participants	X	Yes			

Notes: - "X" indicates that this economic element is a potential benefit that may result from a DSM measure.
- "Yes" indicates that this economic element is accounted for in the DSM preliminary screening test.

Economic Elements Accounted for in DSM Preliminary Screening Tests: Benefits & Costs

Economic Elements	Participant-Incurred Economic Impacts	Included in the Participant Preliminary Screening Test?	Utility-Incurred Economic Impacts	Included in the RIM Preliminary Screening Test?	Included in the TRC Preliminary Screening Test?
Benefits					
Generation Capital and O&M			X	Yes	Yes
Transmission Capital and O&M			X	Yes	Yes
Distribution Capital and O&M			X	Yes	Yes
Net System Fuel Impacts			X	Yes	Yes
Bill Savings by Participants	X	Yes			
Incentives Received by Participants	X	Yes			
Tax Credits Received by Participants	X	Yes			
Costs					
Utility Equipment & Administration			X	Yes	Yes
Incentives Paid to Participants			X	Yes	**No**
Unrecovered Revenue Requirements			X	Yes	**No**
Participants Capital and O&M	X	Yes			Yes

Notes: - "**X**" indicates that this economic element is a potential benefit or cost that may result from a DSM measure.
- "Yes" indicates that this economic element is accounted for in the DSM preliminary screening test.

Summary Results of Preliminary Economic Screening of Individual DSM Measures
(w/o and w/ CO_2 Costs)

Number of DSM Measures Evaluated in Preliminary Economic Screening = 850

Screening Step	w/o CO_2 Costs: RIM Test Preliminary Economic Screening	w/o CO_2 Costs: TRC Test Preliminary Economic Screening	w/ CO_2 Costs: RIM Test Preliminary Economic Screening	w/ CO_2 Costs: TRC Test Preliminary Economic Screening	Notes
Step (1) Total Number of DSM Measures at Starting Point =	850	850	850	850	
a) Number of DSM Measures Removed After Accounting for Unrecovered Revenue Requirements =	415	N.A.	355	N.A.	(1)
b) Number of DSM Measures Removed After Accounting for Participant Costs =	N.A.	278	N.A.	261	(2)
c) Number of DSM Measures Remaining After Screening Step 1 =	435	572	495	589	
Step (2) Number of DSM Measures Removed After Also Accounting for Administrative Costs =	160	62	219	78	
Number of DSM Measures Remaining After Screening Step 2 =	275	510	276	511	
Step (3) Number of DSM Measures Removed After Also Accounting Incentive Payments Needed to Bring the Participant Test Ratio Up to 1.00 for Certain Measures =	123	N.A.	118	N.A.	(3)
Number of DSM Measures Remaining After Screening Step 3 =	152	510	158	511	
Step (4) Number of DSM Measures Removed If Participant Payback is Less Than 2 Years Without Incentive Payments =	32	210	34	210	
Number of DSM Measures Remaining After Screening Step 4 =	120	300	124	301	
Final Number of DSM Measures Remaining After the Preliminary Economic Screening =	**120**	**300**	**124**	**301**	

Notes:

(1) Unrecovered revenue requirements affect all customers in regard to electric rates. The RIM test accounts for this cost impact on all customers. However, the TRC Test does not account for this cost impact to all customers.

(2) Participant costs are <u>not</u> costs that all customers of an electric utility pay for through electric rates. Therefore, these costs are not accounted for in the RIM test that accounts for all costs incurred by all utility customers through electric rates. However, despite the fact that these costs are already accounted for in the Participant Test, the TRC test includes these costs.

(3) Incentive payments by a utility to participating customers are costs that all customers of an electric utility pay for through electric rates. Therefore, incentive payments are accounted for in the RIM Test. However, the TRC Test does not account for these costs.

Summary Results of Preliminary Economic Screening of Individual DSM Measures: Sensitivity Cases

Base or Sensitivity Case	Fuel Cost Forecast	w/ or w/o CO_2 Compliance Costs	Years -to-Payback Test Criterion (Years)	Number of DSM Measures Surviving RIM Path Screening	Number of DSM Measures Surviving TRC Path Screening
Base Case w/o CO_2 *	Medium	w/o	2	120	300
Base Case w/ CO_2 *	Medium	w/	2	124	301
Sensitivity Case 1	High	w/o	2	231	290
Sensitivity Case 2	Low	w/o	2	62	274
Sensitivity Case 3	Medium	w/o	1	140	393
Sensitivity Case 4	Medium	w/o	3	67	193
Sensitivity Case 5	High	w/o	1	293	391
Sensitivity Case 6	High	w/o	3	151	187
Sensitivity Case 7	Low	w/o	1	63	371
Sensitivity Case 8	Low	w/o	3	43	169

* These results were previously presented in Exhibit SRS-5.

Forecasted Fuel and Environmental Compliance Costs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Fuel Costs *					Environmental Compliance Costs **		
Year	Natural Gas Medium (Nominal $ per mmBtu)	Oil Medium (Nominal $ per mmBtu)	Coal Medium (Nominal $ per mmBtu)	Natural Gas High (Nominal $ per mmBtu)	Natural Gas Low (Nominal $ per mmBtu)	SO_2 (Nominal $ per ton)	NO_X (Nominal $ per ton)	CO_2 (Nominal $ per ton)
2015	$4.26	$14.53	$3.58	$5.18	$3.34	$246	$509	$0
2016	$4.51	$14.81	$3.69	$5.48	$3.53	$58	$522	$0
2017	$4.93	$14.76	$3.88	$6.00	$3.87	$59	$535	$0
2018	$6.00	$16.36	$4.00	$7.30	$4.70	$61	$548	$0
2019	$6.15	$16.73	$4.09	$7.48	$4.82	$62	$562	$0
2020	$6.31	$17.11	$4.18	$7.67	$4.95	$64	$576	$0
2021	$6.41	$17.77	$4.28	$7.80	$5.03	$66	$590	$0
2022	$6.62	$18.49	$4.38	$8.05	$5.19	$67	$605	$10
2023	$6.93	$19.29	$4.49	$8.42	$5.43	$69	$620	$15
2024	$7.34	$20.11	$4.61	$8.92	$5.75	$71	$636	$17
2025	$7.65	$20.94	$4.73	$9.30	$6.00	$72	$652	$19
2026	$7.96	$21.34	$4.86	$9.67	$6.24	$74	$668	$20
2027	$8.26	$21.79	$4.99	$10.05	$6.48	$76	$685	$23
2028	$8.68	$22.18	$5.12	$10.55	$6.80	$78	$702	$25
2029	$8.99	$22.65	$5.25	$10.93	$7.04	$80	$719	$27
2030	$9.19	$23.09	$5.39	$11.18	$7.21	$82	$737	$30
2031	$9.54	$23.46	$5.52	$11.60	$7.48	$84	$756	$33
2032	$9.90	$23.84	$5.66	$12.04	$7.76	$86	$775	$36
2033	$10.27	$24.22	$5.81	$12.49	$8.05	$88	$794	$40
2034	$10.66	$24.61	$5.96	$12.96	$8.36	$90	$814	$43
2035	$11.06	$25.00	$6.23	$13.45	$8.67	$93	$834	$47
2036	$11.48	$25.41	$6.46	$13.96	$9.00	$95	$855	$51
2037	$11.92	$25.82	$6.52	$14.49	$9.34	$97	$877	$55
2038	$12.37	$26.23	$6.55	$15.04	$9.70	$100	$898	$60
2039	$12.83	$26.65	$6.58	$15.61	$10.06	$102	$921	$65
2040	$13.32	$27.08	$6.61	$16.20	$10.44	$105	$944	$70
2041	$13.82	$27.52	$6.64	$16.81	$10.84	$108	$968	$76
2042	$14.35	$27.96	$6.68	$17.44	$11.25	$110	$992	$81
2043	$14.89	$28.41	$6.72	$18.10	$11.67	$113	$1,016	$87
2044	$15.45	$28.87	$6.77	$18.79	$12.11	$116	$1,042	$94
2045	$16.04	$29.34	$6.84	$19.50	$12.57	$119	$1,068	$100
2046	$16.64	$29.81	$6.92	$20.24	$13.05	$122	$1,095	$107
2047	$17.27	$30.29	$7.03	$21.00	$13.54	$125	$1,122	$114
2048	$17.92	$30.78	$7.16	$21.80	$14.05	$128	$1,150	$122
2049	$18.60	$31.28	$7.30	$22.62	$14.58	$131	$1,179	$129
2050	$19.31	$31.78	$7.46	$23.48	$15.14	$134	$1,208	$137
2051	$20.04	$32.30	$7.63	$24.36	$15.71	$138	$1,238	$146
2052	$20.79	$32.82	$7.80	$25.29	$16.30	$141	$1,269	$154
2053	$21.58	$33.35	$7.97	$26.24	$16.92	$145	$1,301	$163
2054	$22.40	$33.89	$8.15	$27.24	$17.56	$148	$1,334	$172

* The forecasted fuel cost values shown above are a subset of the numerous forecasted fuel cost values for delivery to different plants, from different pipelines, etc. The natural gas price represents the weighted average FGT Firm price forecast, the oil price represents Martin 1% price forecast, and the coal price represents the St. Johns River Power Park price forecast.

** The CO_2 compliance costs shown above were used with the "w/CO_2 cost" sensitivity screening analysis. The values are a composite of FPL's and Duke Energy Florida's forecasted CO_2 costs that were combined to develop a single CO_2 cost forecast as requested by the FPSC Staff. All other analyses used zero CO_2 compliance costs.

Projection of FPL's Resource Needs for 2015 - 2025 with No Incremental DSM Signups After 2014
(MW at Generator)

Summer

August of the Year	(1) Projections of FPL Unit Capability * (MW)	(2) Projections of Firm Purchases (MW)	(3) = (1)+(2) Projection of Total Capacity (MW)	(4) Peak Load Forecast * * (MW)	(5) Summer DSM Forecast * * * (MW)	(6) = (4)-(5) Forecast of Firm Peak (MW)	(7) = (3)-(6) Forecast of Summer Reserves (MW)	(8) = (7)/(6) Forecast of Summer Reserve Margins w/o Additions (%)	(9) = ((3)-(4))/(4) Forecast of Summer Generation Only Reserve Margins w/o Additions (%)	(10) = ((6)*1.20)-(3) MW Needed to Meet 20% Reserve Margin if Provided by Supply Options Only (MW)	(11) = (10)/1.20 MW Needed to Meet 20% Reserve Margin if Supplied by DSM Options Only (MW)
2015	25,121	2,044	27,165	23,356	2,031	21,324	5,841	27.4%	16.3%	(1,577)	(1,314)
2016	26,358	1,116	27,474	23,778	2,027	21,751	5,723	26.3%	15.5%	(1,373)	(1,144)
2017	25,962	1,116	27,078	24,190	2,022	22,168	4,910	22.2%	11.9%	(477)	(397)
2018	25,916	1,080	26,996	24,544	2,017	22,526	4,469	19.8%	10.0%	**36**	**30**
2019	25,661	705	26,366	24,896	2,013	22,883	3,483	15.2%	5.9%	**1,094**	**911**
2020	25,661	705	26,366	25,239	2,008	23,231	3,134	13.5%	4.5%	**1,512**	**1,260**
2021	25,661	885	26,546	25,439	2,004	23,435	3,110	13.3%	4.4%	**1,577**	**1,314**
2022	26,848	885	27,733	25,908	1,999	23,908	3,824	16.0%	7.0%	**958**	**798**
2023	28,003	885	28,888	26,528	1,995	24,533	4,354	17.7%	8.9%	**552**	**460**
2024	28,031	885	28,916	27,214	1,991	25,223	3,692	14.6%	6.3%	**1,353**	**1,127**
2025	28,031	635	28,666	27,877	1,987	25,890	2,775	10.7%	2.8%	**2,403**	**2,003**

Winter

January of the Year	(1) Projections of FPL Unit Capability * (MW)	(2) Projections of Firm Purchases (MW)	(3) = (1)+(2) Projection of Total Capacity (MW)	(4) Peak Load Forecast * * (MW)	(5) Winter DSM Forecast * * * (MW)	(6) = (4)-(5) Forecast of Firm Peak (MW)	(7) = (3)-(6) Forecast of Winter Reserves (MW)	(8) = (7)/(6) Forecast of Winter Reserve Margins w/o Additions (%)	(9) = ((3)-(4))/(4) Forecast of Winter Generation Only Reserve Margins w/o Additions (%)	(10) = ((6)*1.20)-(3) MW Needed to Meet 20% Reserve Margin if Provided by Supply Options Only (MW)	(11) = (10)/1.20 MW Needed to Meet 20% Reserve Margin if Supplied by DSM Options Only (MW)
2015	26,593	2,052	28,645	20,971	1,514	19,458	9,188	47.2%	36.6%	(5,296)	(4,413)
2016	26,644	1,124	27,768	21,490	1,510	19,981	7,788	39.0%	29.2%	(3,791)	(3,160)
2017	27,592	1,124	28,716	21,731	1,506	20,225	8,491	42.0%	32.1%	(4,446)	(3,705)
2018	27,548	1,088	28,636	21,968	1,502	20,467	8,169	39.9%	30.3%	(4,075)	(3,396)
2019	27,171	1,088	28,259	22,180	1,498	20,682	7,576	36.6%	27.4%	(3,440)	(2,867)
2020	27,171	705	27,876	22,383	1,494	20,889	6,986	33.4%	24.5%	(2,808)	(2,340)
2021	27,171	885	28,056	22,584	1,490	21,094	6,961	33.0%	24.2%	(2,742)	(2,285)
2022	27,171	885	28,056	22,601	1,486	21,115	6,940	32.9%	24.1%	(2,717)	(2,264)
2023	28,271	885	29,156	22,891	1,482	21,409	7,747	36.2%	27.4%	(3,465)	(2,887)
2024	29,460	885	30,345	23,211	1,479	21,732	8,613	39.6%	30.7%	(4,266)	(3,555)
2025	29,460	635	30,095	23,528	1,476	22,053	8,042	36.5%	27.9%	(3,631)	(3,026)

* FPL generating unit capability values shown above assume the following major changes to the FPL system:
- conversion of Turkey Point Unit 1 to synchronous condenser operation in 2016;
- retirement of Putnam Units 1 & 2 at the end of 2014;
- completion of the Port Everglades modernization in 2016;
- retirement of 1,260 MW of existing gas turbines (GT) in Broward County, and the addition of 5 201 MW new combustion turbines in Broward County by the end of 2018;
- EcoGen PPA of 180 MW of firm capacity in 2021; and,
- Turkey Point nuclear units 6 & 7 in 2022 and 2023, respectively

* * The Peak Load Forecast is FPL's October 2014 load forecast.

* * * DSM values shown represent no incremental DSM signups after December 2014 and minor decline of residential load control participant numbers due to annual attrition.

Comparison of DSM Achievable Potential Summer MW Values with FPL's Projected Summer Resource Needs

(Assuming the Resource Needs are Met Solely by DSM)

(MW at Generator)

Year	(1) **RIM Path** Cumulative DSM Achievable Potential (Summer MW)	(2) **TRC Path** Cumulative DSM Achievable Potential (Summer MW)	(3) Projected FPL Resource Needs if Resource Needs are Met Solely by DSM * (Summer MW)	(4) **RIM Path** Can the Achievable Potential DSM Meet FPL's Resource Needs ?	(5) **TRC Path** Can the Achievable Potential DSM Meet FPL's Resource Needs ?
2015	48	47	---	---	---
2016	98	100	---	---	---
2017	149	154	---	---	---
2018	200	209	30	Yes	Yes
2019	252	267	911	No	No
2020	305	325	1,260	No	No
2021	359	385	1,314	No	No
2022	414	447	798	No	No
2023	470	511	460	Yes	Yes
2024	526	576	1,127	No	No
2025	---		2,003	No	No

* The projected Summer resource need values in Column (3) are from Exhibit SRS-8, Column 11.

Overview of Supply Only and With DSM Resource Plans

Year	Supply Only Resource Plan			
	Generation Additions * (MW)	Cumulative DSM Additions (MW)	Total Reserve Margin (%)	Generation-Only Reserve Margin ** (%)
	---	---	---	---
2015	0	0	27.4	16.3
2016	0	0	26.3	15.5
2017	0	0	22.2	11.9
2018	36 (PPA)	0	20.0	10.1
2019	1,269	0	20.8	11.0
2020	308 (PPA)	0	20.3	10.7
2021	308 (PPA)	0	20.0	10.5
2022	0	0	21.3	11.9
2023	0	0	22.9	13.7
2024	84 (PPA)	0	20.0	11.2
2025	1,269	0	20.5	11.9

Year	RIM 337 MW Resource Plan			
	Generation Additions * (MW)	Cumulative DSM Additions (MW)	Total Reserve Margin (%)	Generation-Only Reserve Margin ** (%)
	---	---	---	---
2015	0	26	27.5	16.3
2016	0	56	26.6	15.5
2017	0	87	22.6	11.9
2018	0	120	20.5	10.0
2019	1,269	154	21.6	11.0
2020	129 (PPA)	189	20.5	10.0
2021	168 (PPA)	225	20.6	10.0
2022	0	261	22.6	11.9
2023	0	298	24.4	13.7
2024	0	337	21.3	10.9
2025	730 (PPA)	---	20.0	10.0

Year	TRC 337 MW Resource Plan			
	Generation Additions * (MW)	Cumulative DSM Additions (MW)	Total Reserve Margin (%)	Generation-Only Reserve Margin ** (%)
	---	---	---	---
2015	0	23	27.5	16.3
2016	0	48	26.6	15.5
2017	0	75	22.6	11.9
2018	0	104	20.4	10.0
2019	1,269	136	21.5	11.0
2020	129 (PPA)	173	20.4	10.0
2021	168 (PPA)	213	20.5	10.0
2022	0	254	22.6	11.9
2023	0	295	24.4	13.7
2024	0	337	21.3	10.9
2025	730 (PPA)	---	20.0	10.0

(Non-Conforming Resource Plans)

Year	RIM 526 MW Resource Plan			
	Generation Additions * (MW)	Cumulative DSM Additions (MW)	Total Reserve Margin (%)	Generation-Only Reserve Margin ** (%)
	---	---	---	---
2015	0	48	27.7	16.3
2016	0	98	26.9	15.5
2017	0	149	23.0	11.9
2018	0	200	20.9	10.0
2019	1,269	252	22.1	11.0
2020	0	305	20.5	**9.5**
2021	0	359	20.5	**9.3**
2022	0	414	23.4	11.9
2023	0	470	25.3	13.7
2024	0	526	22.2	10.9
2025	503 (PPA)	---	20.0	**9.2**

Year	TRC 576 MW Resource Plan			
	Generation Additions * (MW)	Cumulative DSM Additions (MW)	Total Reserve Margin (%)	Generation-Only Reserve Margin ** (%)
	---	---	---	---
2015	0	47	27.7	16.3
2016	0	100	26.9	15.5
2017	0	154	23.0	11.9
2018	0	209	21.0	10.0
2019	1,269	267	22.2	11.0
2020	0	325	20.6	**9.5**
2021	0	385	20.7	**9.3**
2022	0	447	23.6	11.9
2023	0	511	25.5	13.7
2024	0	576	22.5	10.9
2025	442 (PPA)	---	20.0	**9.0**

* The generation additions shown do not include the five generation changes discussed in the testimony that are common to all of the resource plans. The 1,269 MW entries represent a new CC unit. All other entries with different MW values represent PPAs. The 308 PPA shown for the Supply Only resource plan is one PPA for 308 MW that is for a two-year period.

** The GRM criterion takes effect beginning in year 2019.

Docket No. 130199-EI
Overview of the Supply Only and With DSM Resource Plans
Exhibit SRS-10, Page 1 of 1

Comparison of the Five Resource Plans: Economic Analyses Results and Consequences

Resource Plan	Levelized System Average Electric Rate (cents/kWh)	Avoids Cross-Subsidization of Customer Groups ?
RIM 337 MW	11.7412	Yes
Supply Only	11.7419	Yes *
TRC 337 MW	11.7579	No

Information for Non-Conforming Plans (Provided at the Request of FPSC Staff)

RIM 526 MW	11.7431	No
TRC 576 MW	11.7636	No

* This resource plan would avoid cross-subsidization of customer groups in the absence of the RIM 337 MW plan.

Example of Levelized System Average Electric Rate Calculation for One Resource Plan: RIM 337 MW

Year	(1) Annual Discount Factor 7.54%	(2) Resource Plan Variable Costs ($000, Nom)	(3) Resource Plan Fixed Costs ($000, Nom)	(4) Non-Resource Plan Other System Costs * ($000, Nom)	(5) = (2)+(3)+(4) System Revenue Requirements ($000, Nom)	(6) Load Forecast NEL (GWh)	(7) DSM Energy Reduction ** (GWh)	(8) = (6) - (7) Load Forecast NEL Adjusted by DSM (GWh)	(9) = ((5)/(8))/10 Annual Electric Rate (cents/kWh, Nom)	(10) = (9) *(1) Annual Electric Rate (cents/kWh, NPV)	(11) Nominal Levelized System Average Rate (cents/kWh)	(12) = (11) * (1) NPV Levelized System Average Rate (cents/kWh)
2014	1.000	3,023,174	0	6,712,470	9,735,645	118,001	144	117,858	8.26051	8.26051	11.7412	11.7412
2015	0.930	3,196,997	3,160	7,042,136	10,242,292	121,606	223	121,383	8.43799	7.84638	11.7412	10.9180
2016	0.865	3,448,068	5,846	7,291,850	10,745,764	123,943	225	123,718	8.68569	7.51042	11.7412	10.1525
2017	0.804	3,668,702	8,653	7,557,379	11,234,734	124,914	228	124,686	9.01044	7.24496	11.7412	9.4407
2018	0.748	4,424,020	11,644	7,775,147	12,210,812	126,399	231	126,167	9.67827	7.23632	11.7412	8.7787
2019	0.695	4,419,283	208,619	8,077,906	12,705,808	127,673	235	127,438	9.97021	6.93193	11.7412	8.1632
2020	0.647	4,594,064	339,578	8,271,624	13,205,265	129,187	240	128,947	10.24083	6.62087	11.7412	7.5909
2021	0.601	4,701,022	332,152	8,502,872	13,536,046	129,454	246	129,208	10.47617	6.29814	11.7412	7.0587
2022	0.559	4,673,713	459,484	9,312,344	14,445,541	130,517	253	130,264	11.08942	6.19939	11.7412	6.5638
2023	0.520	4,583,369	652,881	9,515,091	14,751,342	132,357	262	132,095	11.16723	5.80517	11.7412	6.1035
2024	0.483	4,850,401	727,908	9,715,026	15,293,335	134,849	273	134,576	11.36410	5.49332	11.7412	5.6756
2025	0.449	5,136,370	952,030	9,516,970	15,605,370	136,455	280	136,175	11.45976	5.15116	11.7412	5.2777
2026	0.418	5,371,049	1,260,406	9,470,760	16,102,215	138,479	280	138,200	11.65139	4.87010	11.7412	4.9076
2027	0.389	5,628,809	1,645,227	9,490,440	16,764,475	140,323	280	140,044	11.97087	4.65281	11.7412	4.5635
2028	0.361	5,964,767	1,809,065	9,550,015	17,323,847	142,712	280	142,433	12.16284	4.39597	11.7412	4.2436
2029	0.336	6,266,668	2,039,547	9,561,265	17,867,480	144,165	280	143,886	12.41781	4.17344	11.7412	3.9460
2030	0.313	6,578,653	2,157,863	9,588,160	18,324,676	145,896	280	145,617	12.58419	3.93283	11.7412	3.6694
2031	0.291	6,915,598	2,221,186	9,608,336	18,745,120	147,521	280	147,241	12.73090	3.69972	11.7412	3.4121
2032	0.270	7,450,686	2,505,464	9,657,799	19,613,949	149,703	280	149,422	13.12651	3.54722	11.7412	3.1729
2033	0.251	8,279,929	3,070,860	9,628,360	20,979,149	150,841	280	150,561	13.93398	3.50142	11.7412	2.9504
2034	0.234	8,735,919	3,268,755	9,637,330	21,642,004	152,296	280	152,016	14.23663	3.32664	11.7412	2.7435
2035	0.217	9,187,855	3,693,073	9,647,074	22,528,002	153,760	280	153,481	14.67805	3.18932	11.7412	2.5512
2036	0.202	10,073,030	4,061,748	9,679,412	23,814,190	155,629	280	155,349	15.32952	3.09733	11.7412	2.3723
2037	0.188	10,514,972	4,354,944	9,664,376	24,534,292	156,538	280	156,259	15.70108	2.94998	11.7412	2.2060
2038	0.175	11,056,971	4,462,447	9,692,276	25,211,694	157,974	280	157,694	15.98773	2.79323	11.7412	2.0513
2039	0.162	11,603,959	4,692,697	9,734,402	26,031,057	159,414	280	159,135	16.35789	2.65752	11.7412	1.9075
2040	0.151	12,102,917	5,190,999	9,804,202	27,098,118	161,289	280	161,009	16.83024	2.54255	11.7412	1.7737
2041	0.140	12,736,924	5,192,557	9,882,005	27,811,486	162,778	280	162,499	17.11487	2.40427	11.7412	1.6494
2042	0.131	13,418,915	5,311,161	9,960,637	28,690,712	164,282	280	164,002	17.49407	2.28523	11.7412	1.5337
2043	0.121	14,369,049	5,608,855	10,039,993	30,017,897	165,800	280	165,520	18.13550	2.20292	11.7412	1.4262
2044	0.113	15,193,079	5,822,906	10,082,824	31,098,809	167,332	280	167,051	18.61633	2.10278	11.7412	1.3262
2045	0.105	15,966,093	5,852,053	10,127,611	31,945,757	168,878	280	168,598	18.94785	1.99016	11.7412	1.2332
2046	0.098	16,666,050	5,987,704	10,174,319	32,828,073	170,439	280	170,159	19.29257	1.88430	11.7412	1.1468
2047	0.091	17,457,023	6,560,845	10,222,913	34,240,781	172,014	280	171,735	19.93819	1.81082	11.7412	1.0664
2048	0.084	18,332,070	6,554,227	10,273,359	35,159,655	173,604	280	173,324	20.28550	1.71319	11.7412	0.9916
2049	0.079	19,149,008	6,658,212	10,325,591	36,132,811	175,210	280	174,930	20.65556	1.62213	11.7412	0.9221
2050	0.073	20,237,070	6,778,156	10,379,602	37,394,828	176,830	280	176,551	21.18081	1.54675	11.7412	0.8574
2051	0.068	21,247,070	6,909,669	10,435,361	38,592,100	178,466	280	178,186	21.65832	1.47073	11.7412	0.7973
2052	0.063	22,183,025	7,125,419	10,492,841	39,801,286	180,116	280	179,836	22.13197	1.39752	11.7412	0.7414
2053	0.059	23,256,053	7,166,139	10,552,014	40,974,207	181,783	280	181,503	22.57489	1.32555	11.7412	0.6894
2054	0.055	24,419,078	7,668,746	10,612,855	42,700,679	183,465	280	183,186	23.31007	1.27275	11.7412	0.6411
										158.95772		158.95772

* Includes system costs not affected by the resource plan such as existing generation, T&D, staff, and DSM costs not tied directly to new DSM signups (such as rebates to existing LM participants, etc.).

** DSM energy reductions are incremental from August 2013.

Levelized System Average Electric Rate (cents/kWh) = **11.7412**

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Example of Levelized System Average Electric Rate Calculation for One Resource Plan: RIM 337 MW
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Docket No. 130199-EI
Example of Levelized System Average Electric Rate
Additional Cost Needed to be Added to RIM 337 MW Plan to Increase
its Levelized System Average Electric Rate to That of TRC 337 MW Plan
Exhibit SRS-13, Page 1 of 1

Additional Cost Needed to be Added to RIM 337 MW Plan to Increase its Levelized System Average Electric Rate to That of TRC 337 MW Plan

Year	(1) Annual Discount Factor 7.54%	(2) Resource Plan Variable Costs ($000, Nom)	(3) Resource Plan Fixed Costs ($000, Nom)	(4) Non-Resource Plan Other System Costs * ($000, Nom)	(5) "What If" One-Time Cost ($000, Nom)	(6) = (2)+(3)+(4)+(5) System Revenue Requirements ($000, Nom)	(7) Load Forecast NEL (GWh)	(8) DSM Energy Reduction ** (GWh)	(9) = (7) - (8) Load Forecast NEL Adjusted by DSM (GWh)	(10) = ((6)/(9))/10 Annual Electric Rate (cents/kWh, Nom)	(11) = (10) *(1) Annual Electric Rate (cents/kWh, NPV)	(12) Nominal Levelized System Average Rate (cents/kWh)	(13) = (12) * (1) NPV Levelized System Average Rate (cents/kWh)
2014	1.000	3,023,174	0	6,712,470	0	9,735,645	118,001	144	117,858	8.26051	8.26051	11.7579	11.7579
2015	0.930	3,196,997	3,160	7,042,136	0	10,242,292	121,606	223	121,383	8.43799	7.84638	11.7579	10.9335
2016	0.865	3,448,068	5,846	7,291,850	0	10,745,764	123,943	225	123,718	8.68569	7.51042	11.7579	10.1669
2017	0.804	3,668,702	8,653	7,557,379	0	11,234,734	124,914	228	124,686	9.01044	7.24496	11.7579	9.4541
2018	0.748	4,424,020	11,644	7,775,147	0	12,210,812	126,399	231	126,167	9.67827	7.23632	11.7579	8.7912
2019	0.695	4,419,283	208,619	8,077,906	0	12,705,808	127,673	235	127,438	9.97021	6.93193	11.7579	8.1749
2020	0.647	4,594,064	339,578	8,271,624	0	13,205,265	129,187	240	128,947	10.24083	6.62087	11.7579	7.6017
2021	0.601	4,701,022	332,152	8,502,872	0	13,536,046	129,454	246	129,208	10.47617	6.29814	11.7579	7.0687
2022	0.559	4,673,713	459,484	9,312,344	0	14,445,541	130,517	253	130,264	11.08942	6.19939	11.7579	6.5731
2023	0.520	4,583,369	652,881	9,515,091	0	14,751,342	132,357	262	132,095	11.16723	5.80517	11.7579	6.1122
2024	0.483	4,850,401	727,908	9,715,026	**630,247**	15,923,583	134,849	273	134,576	11.83242	5.71970	11.7579	5.6837
2025	0.449	5,136,370	952,030	9,516,970	0	15,605,370	136,455	280	136,175	11.45976	5.15116	11.7579	5.2852
2026	0.418	5,371,049	1,260,406	9,470,760	0	16,102,215	138,479	280	138,200	11.65139	4.87010	11.7579	4.9146
2027	0.389	5,628,809	1,645,227	9,490,440	0	16,764,475	140,323	280	140,044	11.97087	4.65281	11.7579	4.5700
2028	0.361	5,964,767	1,809,065	9,550,015	0	17,323,847	142,712	280	142,433	12.16284	4.39597	11.7579	4.2496
2029	0.336	6,266,668	2,039,547	9,561,265	0	17,867,480	144,165	280	143,886	12.41781	4.17344	11.7579	3.9517
2030	0.313	6,578,653	2,157,863	9,588,160	0	18,324,676	145,896	280	145,617	12.58419	3.93283	11.7579	3.6746
2031	0.291	6,915,598	2,221,186	9,608,336	0	18,745,120	147,521	280	147,241	12.73090	3.69972	11.7579	3.4170
2032	0.270	7,450,686	2,505,464	9,657,799	0	19,613,949	149,703	280	149,422	13.12651	3.54722	11.7579	3.1774
2033	0.251	8,279,929	3,070,860	9,628,360	0	20,979,149	150,841	280	150,561	13.93398	3.50142	11.7579	2.9546
2034	0.234	8,735,919	3,268,755	9,637,330	0	21,642,004	152,296	280	152,016	14.23663	3.32664	11.7579	2.7475
2035	0.217	9,187,855	3,693,073	9,647,074	0	22,528,002	153,760	280	153,481	14.67805	3.18932	11.7579	2.5548
2036	0.202	10,073,030	4,061,748	9,679,412	0	23,814,190	155,629	280	155,349	15.32952	3.09733	11.7579	2.3757
2037	0.188	10,514,972	4,354,944	9,664,376	0	24,534,292	156,538	280	156,259	15.70108	2.94998	11.7579	2.2091
2038	0.175	11,056,971	4,462,447	9,692,276	0	25,211,694	157,974	280	157,694	15.98773	2.79323	11.7579	2.0542
2039	0.162	11,603,959	4,692,697	9,734,402	0	26,031,057	159,414	280	159,135	16.35789	2.65752	11.7579	1.9102
2040	0.151	12,102,917	5,190,999	9,804,202	0	27,098,118	161,289	280	161,009	16.83024	2.54255	11.7579	1.7763
2041	0.140	12,736,924	5,192,557	9,882,005	0	27,811,486	162,778	280	162,499	17.11487	2.40427	11.7579	1.6517
2042	0.131	13,418,915	5,311,161	9,960,637	0	28,690,712	164,282	280	164,002	17.49407	2.28523	11.7579	1.5359
2043	0.121	14,369,049	5,608,855	10,039,993	0	30,017,897	165,800	280	165,520	18.13550	2.20292	11.7579	1.4282
2044	0.113	15,193,079	5,822,906	10,082,824	0	31,098,809	167,332	280	167,051	18.61633	2.10278	11.7579	1.3281
2045	0.105	15,966,093	5,852,053	10,127,611	0	31,945,757	168,878	280	168,598	18.94785	1.99016	11.7579	1.2350
2046	0.098	16,666,050	5,987,704	10,174,319	0	32,828,073	170,439	280	170,159	19.29257	1.88430	11.7579	1.1484
2047	0.091	17,457,023	6,560,845	10,222,913	0	34,240,781	172,014	280	171,735	19.93819	1.81082	11.7579	1.0679
2048	0.084	18,332,070	6,554,227	10,273,359	0	35,159,655	173,604	280	173,324	20.28550	1.71319	11.7579	0.9930
2049	0.079	19,149,008	6,658,212	10,325,591	0	36,132,811	175,210	280	174,930	20.65556	1.62213	11.7579	0.9234
2050	0.073	20,237,070	6,778,156	10,379,602	0	37,394,828	176,830	280	176,551	21.18081	1.54675	11.7579	0.8586
2051	0.068	21,247,070	6,909,669	10,435,361	0	38,592,100	178,466	280	178,186	21.65832	1.47073	11.7579	0.7984
2052	0.063	22,183,025	7,125,419	10,492,841	0	39,801,286	180,116	280	179,836	22.13197	1.39752	11.7579	0.7425
2053	0.059	23,256,053	7,166,139	10,552,014	0	40,974,207	181,783	280	181,503	22.57489	1.32555	11.7579	0.6904
2054	0.055	24,419,078	7,668,746	10,612,855	0	42,700,679	183,465	280	183,186	23.31007	1.27275	11.7579	0.6420
											159.18411		159.18411

* Includes system costs not affected by the resource plan such as existing generation, T&D, staff, and DSM costs not tied directly to new DSM signups (such as rebates to existing LM participants, etc.).

** DSM energy reductions are incremental from August 2013.

Levelized System Average Electric Rate (cents/kWh) = 11.7579

Comparison of the Five Resource Plans: Projection of System Average Electric Rates and Customer Bills (Assuming 1,200 kWh Usage)

1) Projection of System Average Electric Rates & Customer Bills:

	Supply Only Resource Plan		RIM 337 MW		TRC 337 MW			(Non-Conforming Resource Plans) RIM 526 MW *		TRC 576 MW *	
Year	Projected Electric Rate (cents/kWh)	Projected Customer Bill ($/1,200 kWh)	Projected Electric Rate (cents/kWh)	Projected Customer Bill ($/1,200 kWh)	Projected Electric Rate (cents/kWh)	Projected Customer Bill ($/1,200 kWh)		Projected Electric Rate (cents/kWh)	Projected Customer Bill ($/1,200 kWh)	Projected Electric Rate (cents/kWh)	Projected Customer Bill ($/1,200 kWh)
2015	8.432	$101.18	8.438	$101.26	8.443	$101.32		8.450	$101.40	8.458	$101.50
2016	8.677	$104.13	8.686	$104.23	8.691	$104.29		8.697	$104.37	8.709	$104.51
2017	8.999	$107.99	9.010	$108.13	9.016	$108.19		9.024	$108.29	9.036	$108.43
2018	9.666	$115.99	9.678	$116.14	9.686	$116.23		9.692	$116.31	9.707	$116.49
2019	9.954	$119.45	9.970	$119.64	9.979	$119.74		9.985	$119.82	10.004	$120.05
2020	10.226	$122.71	10.241	$122.89	10.252	$123.02		10.257	$123.09	10.279	$123.35
2021	10.457	$125.49	10.476	$125.71	10.491	$125.90		10.494	$125.93	10.518	$126.22
2022	11.067	$132.80	11.089	$133.07	11.109	$133.30		11.111	$133.33	11.141	$133.69
2023	11.144	$133.73	11.167	$134.01	11.189	$134.27		11.190	$134.28	11.224	$134.69
2024	11.341	$136.09	11.364	$136.37	11.388	$136.65		11.388	$136.65	11.425	$137.10
2025	11.510	$138.12	11.460	$137.52	11.482	$137.79		11.474	$137.69	11.496	$137.95

2) Projection of Average Customer Bill Differentials:

	Bill Differentials for Each Plan Compared to the Supply Only Plan					
					(Non-Conforming Resource Plans)	
Year	Supply Only	RIM 337 MW	TRC 337 MW		RIM 526 MW *	TRC 576 MW *
2015	$0.00	$0.07	$0.14		$0.22	$0.32
2016	$0.00	$0.10	$0.16		$0.24	$0.38
2017	$0.00	$0.13	$0.20		$0.29	$0.44
2018	$0.00	$0.15	$0.23		$0.31	$0.50
2019	$0.00	$0.20	$0.30		$0.38	$0.60
2020	$0.00	$0.18	$0.32		$0.38	$0.64
2021	$0.00	$0.23	$0.41		$0.44	$0.73
2022	$0.00	$0.27	$0.50		$0.53	$0.89
2023	$0.00	$0.28	$0.54		$0.55	$0.96
2024	$0.00	$0.28	$0.56		$0.56	$1.01
2025	$0.00	($0.60)	($0.33)		($0.43)	($0.17)

* The two non-conforming resource plans, the RIM 526 MW plan and the TRC 576 MW plan, utilize the full Achievable Potential MW without regard for optimizing selection and timing of DSM measures and without regard for meeting FPL's system reliability criteria.

Docket No. 130199-EI
Comparison of the Five Resource Plans: Projection of System Average Electric Rates and Customer Bills (Assuming 1,200 kWh Usage)
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Comparison of the Five Resource Plans: Projection of System Emissions

SO_2 (thousand tons)

Year	Supply Only Plan	RIM 337 MW Plan	TRC 337 MW Plan	(Non-Conforming Resource Plans) RIM 526 MW Plan	(Non-Conforming Resource Plans) TRC 576 MW Plan
2015	11.6	11.6	11.6	11.6	11.6
2016	10.9	10.9	10.9	10.9	10.9
2017	9.5	9.5	9.5	9.5	9.5
2018	11.4	11.4	11.3	11.3	11.3
2019	8.1	8.1	8.1	8.1	8.1
2020	6.9	7.0	6.9	7.0	7.0
2021	6.9	7.0	6.9	7.1	7.0
2022	6.5	6.5	6.5	6.5	6.5
2023	6.3	6.3	6.2	6.2	6.2
2024	6.7	6.7	6.7	6.7	6.6
2025	4.8	5.3	5.2	5.4	5.3

NO_x (thousand tons)

Year	Supply Only Plan	RIM 337 MW Plan	TRC 337 MW Plan	(Non-Conforming Resource Plans) RIM 526 MW Plan	(Non-Conforming Resource Plans) TRC 576 MW Plan
2015	8.8	8.8	8.8	8.8	8.8
2016	6.6	6.6	6.6	6.6	6.6
2017	6.6	6.6	6.6	6.6	6.6
2018	7.0	7.0	7.0	7.0	7.0
2019	6.1	6.1	6.1	6.1	6.1
2020	5.9	6.0	5.9	6.0	5.9
2021	5.9	6.0	5.9	6.0	5.9
2022	5.6	5.6	5.6	5.6	5.5
2023	5.2	5.2	5.1	5.1	5.1
2024	5.2	5.3	5.2	5.2	5.2
2025	5.2	5.5	5.4	5.5	5.4

CO_2 (million tons)

Year	Supply Only Plan	RIM 337 MW Plan	TRC 337 MW Plan	(Non-Conforming Resource Plans) RIM 526 MW Plan	(Non-Conforming Resource Plans) TRC 576 MW Plan
2015	46.0	46.0	46.0	46.0	46.0
2016	43.6	43.6	43.5	43.5	43.5
2017	45.0	45.0	44.9	44.9	44.9
2018	47.3	47.3	47.3	47.3	47.2
2019	45.8	45.8	45.7	45.7	45.6
2020	45.7	45.7	45.6	45.6	45.5
2021	45.9	45.9	45.7	45.8	45.6
2022	44.0	43.9	43.8	43.8	43.6
2023	40.9	40.8	40.6	40.7	40.5
2024	40.9	40.9	40.7	40.7	40.5
2025	39.7	40.1	39.8	39.9	39.7

Comparison of the Five Resource Plans:
Projection of System Oil and Natural Gas Usage

Oil (million mmBtu)

Year	Supply Only Plan	RIM 337 MW Plan	TRC 337 MW Plan	(Non-Conforming Resource Plans) RIM 526 MW Plan	(Non-Conforming Resource Plans) TRC 576 MW Plan
2015	7.4	7.4	7.4	7.4	7.4
2016	8.6	8.6	8.5	8.5	8.5
2017	3.9	4.0	3.9	3.9	3.9
2018	5.2	5.2	5.1	5.1	5.1
2019	2.5	2.5	2.4	2.4	2.4
2020	2.6	2.8	2.7	2.9	2.8
2021	2.7	2.8	2.8	3.0	2.9
2022	1.8	1.8	1.7	1.7	1.7
2023	1.1	1.1	1.0	1.0	0.9
2024	1.7	1.8	1.7	1.7	1.6
2025	1.3	2.5	2.4	2.6	2.5

Natural Gas (million mmBtu)

Year	Supply Only Plan	RIM 337 MW Plan	TRC 337 MW Plan	(Non-Conforming Resource Plans) RIM 526 MW Plan	(Non-Conforming Resource Plans) TRC 576 MW Plan
2015	544.7	544.7	544.5	544.5	544.5
2016	584.1	584.1	583.6	583.7	583.3
2017	579.0	578.9	578.0	578.2	577.7
2018	581.7	581.6	580.2	580.4	579.5
2019	580.5	580.4	578.5	578.8	577.4
2020	596.5	596.1	594.2	594.5	592.7
2021	600.5	600.2	598.0	598.3	596.2
2022	570.6	570.5	567.6	568.1	565.6
2023	518.9	518.7	515.5	516.1	512.9
2024	515.6	515.2	511.6	512.4	509.1
2025	531.7	534.0	530.4	530.8	527.2

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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