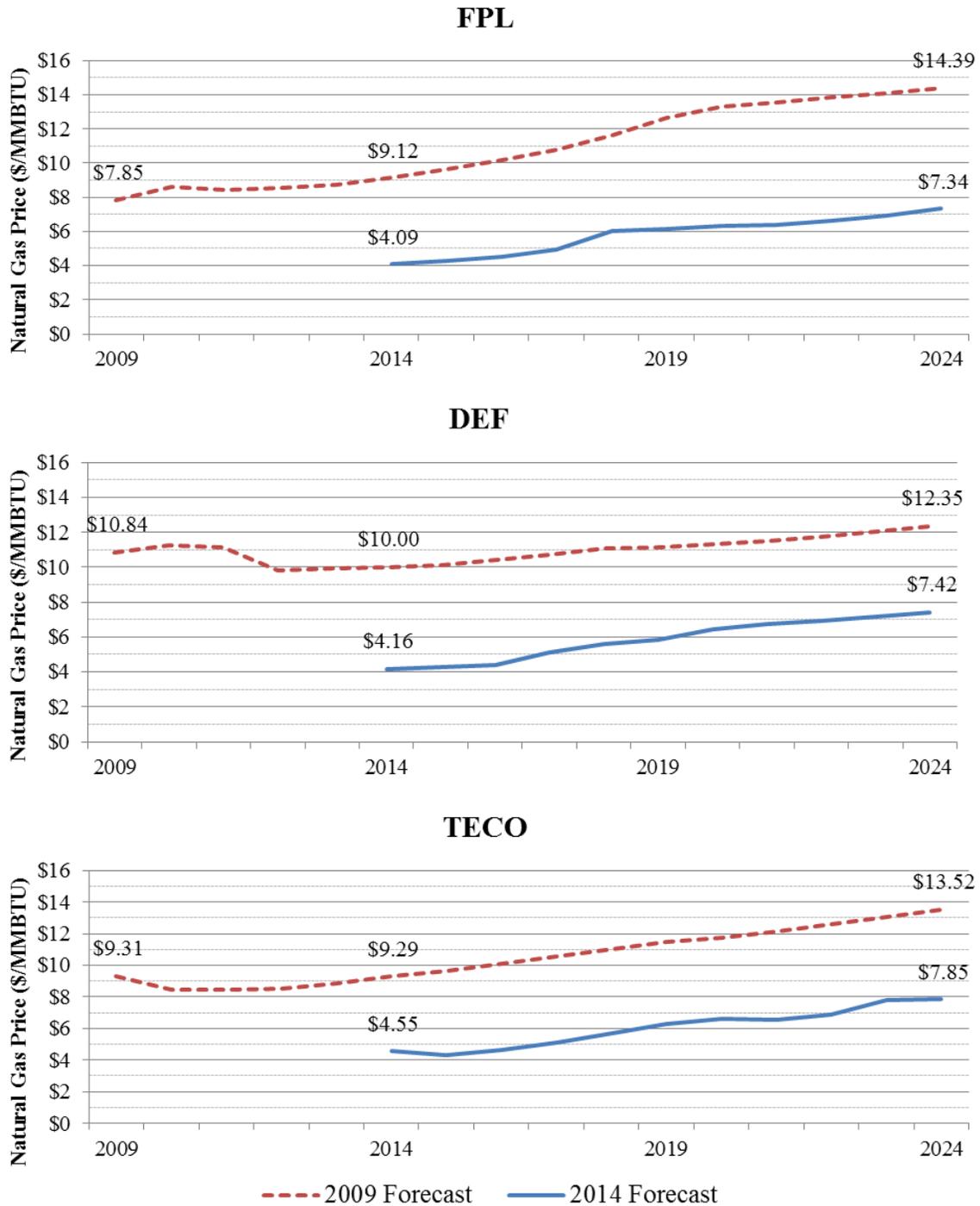


remain below any point along the forecast used in the 2009 goals proceeding for the entirety of the ten-year goal setting period.

**Figure 3-2: Natural Gas Price Forecast Comparisons for FPL, DEF, and TECO**



As discussed above, load forecasts have delayed potential avoided generation. Gulf witness Floyd notes that the later the in-service date of an avoided unit, the less benefit in being deferred or avoided it provides. Table 3-1, illustrates the in-service date, type, and capacity of the avoided units used in the 2009 Goals Proceeding and the current dockets. Since the type of avoided capacity did not change, the benefits of avoided capacity are only impacted by the timing of the capacity.

**Table 4-1: Avoided Unit Comparison for FPL, DEF, TECO, and Gulf**

<b>Company</b>	<b>FPL</b>	<b>DEF</b>	<b>TECO</b>	<b>Gulf</b>
<b>2009 Goals Proceeding (2010-2019)</b>	2019 CC (1,219 MW)	2013 CT (205 MW)	2012 CT (56 MW)	2014 CC (840 MW)
<b>2014 Goals Proceeding (2015-2024)</b>	2019 CC (1,269 MW)	2018 CT (214 MW)	2019 CT (190 MW)	2023 CC (750 MW)

While fuel prices were uniformly down for the FEECA utilities, avoided generation varies by utility. TECO and Gulf have avoided units, coming in later in the goals period, by two and five years respectively. DEF's initial unit is three years from the start of the analysis period for both cases, while later units are delayed further in the current proceeding. For these utilities, avoided generation benefits are reduced because capacity requirements are later in time. FPL's avoided unit, despite having the same in-service date, advances from nine years into the goals period to only four, which increases the benefits of avoided generation. As a consequence of delayed avoided units, demand-side management measures focusing on avoiding capacity are less cost-effective for three of the four Utilities, reducing potential goals.

#### Market Conditions Combined

The potential for demand-side management in Florida has decreased since the 2009 goals proceeding due to changes in market conditions as outlined above. Lower fuel costs reduce the cost-effectiveness of demand-side management measures, as measures offer smaller incentives per unit of energy savings. Lower load forecasts delay anticipated generation, further reducing avoidable costs. Finally, building codes and appliance efficiency standards reduce the amount of incremental savings available. Therefore, several factors beyond the control of the Utilities have the affect of reducing the amount of cost-effective demand-side management available to all customers at this time. We note that while these factors may reduce the incentives offered, it does not limit customers from participating in utility demand-side management programs.

Cost-Effectiveness Evaluations

Rule 25-17.008, F.A.C., and the “Cost-Effectiveness Manual for Demand Side Management Programs and Self Service Wheeling Proposals” (Cost-Effectiveness Manual) were adopted as part of the implementation of Section 366.82, F.S., prior to the 2008 amendments. Rule 25-17.008(3), F.A.C., directs us to evaluate the cost-effectiveness of conservation and direct load control programs utilizing the following three tests.

- **Participants Test:** Measures the impact of the program on the participating customers.
- **Total Resource Cost Test (TRC):** Measures the net costs of a demand-side management program as a resource option.
- **Rate Impact Measure Test (RIM):** Measures the impact on customer rates caused by the program.

Table 4-2, provides an illustration of the costs and benefits, as presented in Rule 25-17.008, F.A.C., assessed under each test. As illustrated in Table 4-2, the benefits associated with the TRC and RIM tests are the same.

**Table 4-2: Summary of Cost-Effectiveness Test Components**

	Participant	Total Resource Cost	Rate Impact Measure
<b>Benefits</b>			
Bill Savings	Yes	-	-
Incentives	Yes	-	-
Tax Credits	Yes	-	-
Avoided Generation	-	Yes	Yes
Avoided Energy	-	Yes	Yes
<b>Costs</b>			
Participant Contributions	Yes	Yes	-
Equipment	-	Yes	Yes
Administrative	-	Yes	Yes
Incentives	-	-	Yes
Lost Revenues	-	-	Yes

Based on Order No. PSC-13-0386-PCO-EU, the FEECA Utilities provided both economic potential and achievable potential evaluations using both the RIM test and the TRC test. The economic potential was developed using the technical potential discussed and then applying multiple economic tests and screenings. While technical potential represents the state of all possible improvements being made, economic potential reflects only those improvements that make economic sense using a cost-effectiveness test. Each cost-effectiveness test, RIM and

TRC, is combined with the Participants test so that measures pass both to be included. The achievable potential is derived from the economic potential and includes an assumed participation rate based upon factors such as availability and customer acceptance. The results from all three tests (Participants, RIM, and TRC) are useful when establishing DSM goals.

### FEECA Utility Proposals

The FEECA Utilities propose to establish annual numeric conservation goals based upon a combination of the RIM and Participants tests, and provided testimony that the RIM and Participants tests alone adequately reflect the costs and benefits to the general body of ratepayers as a whole. DEF, TECO, and Gulf propose that goals be based upon the RIM achievable potential.

FPL witness Sim suggests that goals should be limited by resource needs, and that the achievable potential exceeded the minimum required to meet FPL's reliability requirements. As a result, FPL's proposed goals are less than its achievable potential by approximately 36 percent for summer peak, 42 percent for winter peak, and 89 percent for annual energy consumption.

FPL initially analyzed the 2015 through 2024 goals period, and based upon an avoided unit in 2021, found that no DSM additions were necessary past 2021 for summer peak demand. FPL witness Sim testified that FPL elected to include an additional year in its analysis, 2025, which increased the need for DSM additions by 31 percent for summer peak demand. FPL witness Koch testified that FPL, to determine proposed goals for winter peak demand and annual energy, combined only those measures necessary to meet its summer peak demand determination, primarily load management.

FPL witness Sim testified that FPL's resource analysis included the usage of a generation-only reserve margin that excludes the benefits of demand response resources and incremental energy efficiency. While FPL has noted its use of this metric in this docket, we have not ruled on the use of this methodology based upon this review. We will have an opportunity to review FPL's proposed third reliability criterion if it becomes a factor in a determination of need for a new electrical power plant under the Power Plant Siting Act.<sup>18</sup>

We do not find it appropriate to use constraints for establishing goals based upon the RIM Achievable Potential. By definition, any participation in a measure that passes the Participants Test and the RIM Test is beneficial both to participants and the non-participants. The unconstrained RIM Achievable Potential allows for a larger amount of cost-effective demand-side management with more potential participants while minimizing cross-subsidization. As discussed previously, the reliability considerations of demand-side management are significantly different, however, as measures tend to be implemented in small increments over time, rely upon voluntary participation of customers, and are typically not dispatchable by the utility. Utilizing an unconstrained version of the Test would also be consistent with Order No.

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<sup>18</sup> We have exclusive jurisdiction to determine the need for new electric power plants based on Section 403.519, F.S.

PSC-09-0855-FOF-EG in the 2009 Goals Proceeding, which also rejected the use of constrained goals.<sup>19</sup>

#### Other Parties Proposals

SACE and Sierra Club propose goals based upon a percentage of retail energy sales. SACE witness Mims recommends that the FEECA Utilities meet a goal of 0.75 percent of retail energy sales in 2015, ramping up to 1.0 percent by 2017. Sierra Club witness Woolf recommends ramping up to a goal of 1.0 percent of retail energy sales by 2019. Our staff requested annual numeric conservation goals from both Sierra Club and SACE. Sierra Club's response was incomplete, and the annual values provided do not comply with Rule 25-17.0021(1), F.A.C., in that they include only values for 2015 through 2019 for three utilities, include only values for 2015 through 2018 for one utility, fail to include separate goals for residential and commercial/industrial customers, and include only one season for peak demand goals. SACE and Sierra Club used the TRC test to determine cost-effectiveness, but the goals proposed by both are not based on any cost-effectiveness test. SACE and Sierra Club base the reasonableness of the proposed goals upon experiences in other states. FPL witness Deason, DEF witness Duff, and Gulf witness Floyd testify it is inappropriate to make comparisons with other states without regard to the differences in legislation and other factors. We find that there is no competent or substantial evidence in the record to support the goals proffered by either SACE or the Sierra Club.

#### Sensitivities

Based on Order No. PSC-13-0386-PCO-EU, the FEECA Utilities provided sensitivities of fuel forecasts and free-ridership screening periods for the RIM test and TRC test. In general, the free-ridership sensitivities produced a greater magnitude of change than fuel price sensitivities. The average change in the economic potential of each of the sensitivities is outlined in Table 4-3.

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<sup>19</sup> See Order No. PSC-09-0855-FOF-EG, issued December 30, 2009, Docket No. 080407-EG, In re: Commission Review of numeric conservation goals (Florida Power & Light Company); Docket No. 080408-EG, In re: Commission Review of numeric conservation goals (Progress Energy Florida, Inc.); Docket No. 080409-EG, In re: Commission Review of numeric conservation goals (Tampa Electric Company); Docket No. 080410-EG, In re: Commission Review of numeric conservation goals (Gulf Power Company); Docket No. 080411-EG, In re: Commission Review of numeric conservation goals (Florida Public Utilities Company); Docket No. 080412-EG, In re: Commission Review of numeric conservation goals (Orlando Utilities Commission); Docket No. 080413-EG, In re: Commission Review of numeric conservation goals (JEA).

**Table 4-3: Average Economic Potential Sensitivity Analysis by Test**

Test	Goal	Fuel		Payback	
		High	Low	1 Year	3 Year
RIM	Summer	6.6%	(11.9)%	12.8%	(20.6)%
	Winter	3.4%	(13.0)%	1.2%	(10.2)%
	Annual	10.7%	(17.6)%	13.1%	(20.5)%
TRC	Summer	3.8%	(6.1)%	24.7%	(20.6)%
	Winter	3.8%	(6.1)%	21.4%	(10.2)%
	Annual	2.6%	(4.5)%	30.4%	(20.5)%

In the 2009 Goals Proceeding, each FEECA Utility used an individual forecast for costs associated with CO<sub>2</sub> emissions that had significantly different values and start dates. Based on Order No. PSC-13-0386-PCO-EU the FEECA Utilities did not include costs associated with CO<sub>2</sub> emissions in the base case of the cost-effectiveness screening presented above. To prevent confusion, Order No. PSC-13-0386-PCO-EU directed the FEECA Utilities that wished to include a CO<sub>2</sub> sensitivity to use a common CO<sub>2</sub> price forecast in the current proceeding. Only FPL and DEF provided a CO<sub>2</sub> price sensitivity, and the results show a minor negative effect, as new generation tends to be more efficient and therefore produce less emissions. Should future costs for CO<sub>2</sub> emissions be implemented, it is within our authority to revisit the FEECA goals at that time.

The sensitivities discussed above were conducted on the economic potential, not the achievable potential. In data request responses, the FEECA Utilities suggested that the application of a linear extrapolation was not appropriate, as the sensitivities were conducted at the economic potential level. However, no alternative method is included in the record for applying the sensitivities to calculate an achievable potential. Without an alternative, we find that a linear approach, while not ideal, is an available option.

### Rate Impact

We have direct rate-setting authority over the investor-owned utilities subject to FEECA for which goals are to be established. Based on Order No. PSC-13-0386-PCO-EU, the FEECA Utilities provided the rate impact of the utility's proposal, the RIM achievable potential, and the TRC achievable potential. In previous FEECA goals proceedings, we have considered the impact on rates when determining goals for the FEECA Utilities.

As required by our Rules, the FEECA Utilities will submit programs based upon the goals established in this proceeding, and those program costs will be recovered from the ratepayers through the Energy Conservation Cost Recovery Clause.<sup>20</sup> As incentives are paid based upon participation, cost recovery will vary over time.

<sup>20</sup> Rules 25-17.0021(4) and 25-17.015(1), F.A.C., respectively.

Excluding Gulf, the FEECA Utilities estimate monthly bills would remain approximately the same or decline with the adoption of goals based upon the utilities' proposals, the RIM achievable potential, or the TRC achievable potential. Table 4-4, lists the FEECA Utility's current Energy Conservation Cost Recovery (ECCR) monthly bill impact for 2014 and the average monthly bill impact of these scenarios. While no party provided a monthly ECCR bill impact for all years for the goals recommended by SACE or Sierra Club, it is reasonable to suggest that they would be significantly higher than the scenarios presented below due to the higher goal levels.

**Table 4-4: Average Monthly ECCR Bill Impact by Test**

Utility	2014 ECCR	Average Monthly Bill Impact (\$/1,200-kWh)		
		Utilities Proposal	RIM Achievable	TRC Achievable
<b>FPL</b>	\$3.37	\$1.86	\$2.06	\$2.32
<b>DEF</b>	\$4.82	\$4.04	\$4.04	\$4.54
<b>TECO</b>	\$3.54	\$3.22	\$3.22	\$3.59
<b>Gulf</b>	\$2.71	\$0.91	\$0.91	\$3.97

The discussion above reflects primarily upon the impact of the ECCR Clause, and does not consider the impact of increased energy conservation on the FEECA Utility's base rates. A utility's base rates are established by us in a rate case, and represent the recovery of fixed costs for items such as power plants and operations. Base rates are recovered based upon customer's consumption of energy, which is variable. As a result, if energy consumption decreases, the FEECA Utilities would have fewer units of consumption over which to spread these fixed costs. Such an outcome is often referenced to as lost revenues. SACE witness Mims notes that if sales decline for any reason, rates may increase. The reduction in sales due to participation in demand-side management measures would have the same effect as a sales forecast that did not materialize. We note that decline in sales was the primary factor in the last several electric rate cases before us. If consumption is reduced enough, a utility may file a petition with us for a rate increase.

While lost revenues associated with demand-side management programs are not the only cause for a decrease in a utility's return on equity, should a utility's return on equity be decreased by more than 100 basis points, the utility may file a petition with us for a rate increase. Table 4-5, provides the basis point impact of the RIM and TRC achievable potential goals outlined above, based upon each utility's lost revenues, for the five-year period before goals must be reset. As illustrated below, no utility would be impacted in excess of 100 basis points during the five-year period, with the highest impact of 42.1 for FPL's TRC achievable potential. As a result, it is unlikely that an increase in base rates would be entirely driven by a decline in sales due to conservation during the next five-year period. While no formal analysis was conducted, given the 20 to 40 times higher energy savings associated with Sierra Club and SACE's

proposed goals, it is reasonable to conclude that an increase in base rates would be likely if these intervenors' goals were adopted.

**Table 4-5: Basis Point by Cost-Effectiveness**

Year	RIM Achievable Potential			
	FPL	DEF	TECO	Gulf
2015	2.2	2.9	1.0	4.0
2016	6.8	5.6	2.6	6.0
2017	12.2	8.1	4.0	7.0
2018	18.4	10.3	6.2	8.0
2019	25.8	12.0	8.5	10.0

Year	TRC Achievable Potential			
	FPL	DEF	TECO	Gulf
2015	2.9	5.2	1.6	7.0
2016	9.8	10.3	4.2	9.0
2017	18.6	15.5	6.6	10.0
2018	29.2	21.0	10.2	13.0
2019	42.1	26.8	14.3	15.0

Our decision must be based upon the evidence within the consolidated record of these dockets. Through prior meetings, our staff attempted to streamline the process and ensure we were provided with all available information to make a decision. The procedural orders in this proceeding provided a guideline for all parties to follow. The goals proposed by SACE and Sierra Club are not based on any cost-effectiveness test and are contrary to the previous positions taken by these parties.

As previously discussed, demand-side management is an alternative resource to generation plants and should be evaluated similarly for reliability and economic impacts. The current market conditions adequately explain why the utilities' proposed goals are lower than those proposed in 2009.

The cumulative results of the utility's proposal, the achievable potential based upon the RIM and TRC tests, the proposed goals of Sierra Club and SACE, and our approved goals are provided in Table 4-6. Tables outlining the approved residential annual goals are shown in Attachment B for each utility.

**Table 4-6: Residential Cumulative Goals**

<b>Summer Peak Demand (MW)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	175.8	267.8	220.2	2,467.0	3,575.6	267.8
<b>DEF</b>	173.7	173.7	198.1	n/a	1,206.2	173.7
<b>TECO</b>	25.7	25.7	36.2	317.0	539.8	25.7
<b>Gulf</b>	60.9	60.9	82.8	137.0	322.6	60.9

<b>Winter Peak Demand (MW)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	122.8	166.0	203.8	n/a	2,859.9	166.0
<b>DEF</b>	368.6	368.6	390.0	1,170.0	964.8	368.6
<b>TECO</b>	61.9	61.9	71.0	n/a	431.7	61.9
<b>Gulf</b>	34.7	34.7	50.7	n/a	258.0	34.7

<b>Annual Energy (GWh)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	54.0	247.2	239.8	4,161.0	8,259.5	247.2
<b>DEF</b>	122.6	122.6	269.3	1,425.0	2,786.3	122.6
<b>TECO</b>	56.9	56.9	93.4	717.0	1,246.9	56.9
<b>Gulf</b>	61.9	61.9	158.8	430.0	745.2	61.9

\* Sierra Club's proposed goals are incomplete despite our staff's data request asking for goals for the full ten-year period. Sierra Club's proposed goals are for the period 2015-2019 only, except for Gulf, which is for the period 2015-2018 only.

### Decision

We find appropriate to establish goals for the FEECA Utilities based upon a cost-effectiveness analysis that allows all ratepayers, participants and non-participants, to benefit from the Utilities' demand-side management programs. Therefore, we find annual goals based upon the unconstrained RIM achievable potential be adopted. As the RIM test eliminates cross-subsidies, using an unconstrained RIM allows for maximum participation by customers while keeping rates equitable. We find the use of two-year payback as a free-ridership screen and no inclusion of potential CO<sub>2</sub> costs to establish goals to be appropriate. A breakdown of annual goals for each of the utilities is included in Attachment B.

### COMMERCIAL/INDUSTRIAL

The FEECA Utilities all propose goals based upon a combination of those measures which pass both the RIM test and the Participants test. The FEECA Utilities acknowledge that the proposed goals are lower than those established in the 2009 Goals Proceeding, but that this is expected due to lower costs and changes in codes and standards. The FEECA Utilities further suggest that goals based upon the RIM and Participants test address concerns regarding cross-subsidization between participants and non-participants, and limits rates to all customers. The FEECA Utilities contend that the goals proposed by Sierra Club and SACE are arbitrary, as they are based upon other state's achievements and not upon a cost-effectiveness analysis. FPL asserts that its proposed goals should be limited based upon its forecast resource need, and that the full achievable potential does not comply with FPL's proposed planning process.

NAACP does not propose goals, but recommends that goals should ensure low rates and not allow cross-subsidization. NAACP states that we should utilize the RIM test, as it results in lower rates for low-income customers.

FIPUG recommends that goals based upon the RIM test should be adopted, as they result in low rates.

PCS Phosphate, addressing DEF specifically, recommends we should approve the Utility's proposed goals, utilizing the RIM test and Participants test.

OPC takes no position as to the goals, but recommends that for commercial/industrial goals, we should approve goals that benefit both participants and non-participants. OPC states that if we approve goals based upon the RIM test, then the FEECA Utilities should not be eligible for a reward for exceeding them.

FDACS takes no position as to the goals, but recommends that we should balance concerns regarding rates with the goals to be established.

Walmart and EDF took no position regarding the goals to be established.

Sierra Club proposes that the goals should be set to ramp up energy savings to at least 1 percent of retail energy sales by 2019, or earlier as proposed by SACE. Sierra Club states that these goals would result in lower total costs and average bills. SACE further encourages us to reopen the goals docket in 2015 to establish goals based upon compliance obligations with the proposed federal greenhouse gas regulations. Sierra Club recommends that we should reject the FEECA Utilities' proposals as too low compared to the accomplishments of other states.

SACE proposes that a 1 percent of annual energy savings goal be established for the investor-owned utilities. SACE asserts that the investor-owned utilities have a disincentive to establish meaning goals due to a loss in return on power plants that would be deferred or eliminated. SACE states that it did not base its proposed goals on the FEECA Utilities' economic studies due to multiple fundamental flaws that limited the studies' value in establishing goals.

SACE asserts that the FEECA Utilities are capable of meeting a 1 percent annual sales goal because other states have achieved similar results.

### Analysis

The same factors for residential goals influence the FEECA Utility's commercial/industrial customers and potential conservation goals. We find that the commercial/industrial conservation goals should be based on an unconstrained RIM Test with a two-year payback free-ridership screen and no CO<sub>2</sub> costs included.

Table 5-1, summarizes the Utility's proposed goals, the Achievable Potential for the RIM and TRC Tests, the proposed goals from Sierra Club and SACE, and our approved goals. Tables outlining the potential commercial/industrial annual goals are shown in Attachment C for each utility. As previously discussed, Sierra Club's proposed goals are incomplete, including only values for 2015 through 2019, failing to include separate goals for residential and commercial/industrial customers, and including only summer peak demand goals for three of the utilities and winter peak demand goals for one utility.

**Table 5-1: Commercial/Industrial Cumulative Goals**

<b>Summer Peak Demand (MW)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	160.9	258.3	356.1	2,467.0	2,601.0	258.3
<b>DEF</b>	85.4	85.4	137.1	n/a	917.3	85.4
<b>TECO</b>	30.6	30.6	50.0	317.0	480.2	30.6
<b>Gulf</b>	7.2	7.2	21.5	137.0	289.0	7.2

<b>Winter Peak Demand (MW)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	66.2	158.2	264.6	n/a	1,245.6	158.2
<b>DEF</b>	50.7	50.7	67.8	1,170.0	439.3	50.7
<b>TECO</b>	16.4	16.4	26.5	n/a	230.0	16.4
<b>Gulf</b>	2.0	2.0	7.3	n/a	138.4	2.0

<b>Annual Energy (GWh)</b>						
<b>Utility</b>	<b>Utility Proposed</b>	<b>RIM Achievable</b>	<b>TRC Achievable</b>	<b>Sierra Club*</b>	<b>SACE</b>	<b>Commission Approved</b>
<b>FPL</b>	5.2	279.1	855.8	4,161.0	7,565.2	279.1
<b>DEF</b>	72.4	72.4	229.7	1,425.0	2,667.9	72.4
<b>TECO</b>	87.4	87.4	175.6	717.0	1,396.7	87.4
<b>Gulf</b>	22.3	22.3	109.4	430.0	840.5	22.3

\* Sierra Club's proposed goals are incomplete despite our staff's data request asking for goals for the full ten-year period. Sierra Club's proposed goals are for the period 2015-2019 only, except for Gulf, which is for the period 2015-2018 only.

### Decision

We find that annual goals based upon the unconstrained RIM achievable potential are appropriate. We find that the use of two-year payback as a free-ridership screen and no inclusion of potential CO<sub>2</sub> costs to establish goals is also appropriate. A breakdown of annual goals for each of the utilities is included in Attachment C.

### **DEMAND-SIDE ENERGY RENEWABLE ENERGY GOALS**

The four Investor-Owned Utilities (IOUs), FPL, DEF, TECO and Gulf, assert that goals should not be established because the solar pilot programs were not cost-effective and not an equitable way to encourage demand-side solar development. The lack of cost-effectiveness

places upward pressure on rates. Intervenors NAACP and FDACS concur that rates should be kept as low as possible and cross-subsidization should be avoided. TECO, Gulf, and NAACP contend that it is appropriate for us to set a goal of zero when there are no cost-effective options.

DEF contends in its brief that a goal does not have to be numeric. If we establish a goal, DEF suggests that we approve a utility-owned conceptual community solar pilot program that would resolve issues of cross-subsidization and benefit all customers.

In its brief, FPL explains a solar Research & Demonstration project would involve collecting data from existing solar PV installations and installing solar PV panels that would be metered and instrumented at various locations and on various circuits across the FPL territory. These panels would provide valuable data on customers' electric consumption and energy output of panels based on size, location and configuration. FPL, TECO, and Gulf assert that the Value of Solar (VOS) methodology is not a true cost-effectiveness test, because it only focuses on the benefits of solar.

Walmart and SACE assert that a goal of zero will not encourage the development of demand-side renewable energy systems. EDF, Sierra Club, and Walmart agree that a study is needed, but contend that the topic of the study should be determining the true costs and benefits of solar to Florida utilities. These intervenors also believe that the VOS methodology must be fully evaluated to determine the cost-effectiveness of solar energy. Walmart contends solar energy has values that are not reflected in the standard cost-effectiveness tests, such as reduced exposure to fuel price volatility, reduced transmission and distribution costs, and reduced construction cost risk due to declining cost of installed PV.

FIPUG and Walmart believe we should establish appropriate goals for the development of demand-side renewable energy systems as required by FEECA.

While OPC did not take a position on what goals should be established for the development of demand-side renewable energy systems, it asserted that any goals established by us should comply with the intent of FEECA and safeguard against undue rate impacts.

In its brief, FDACS contends any goals established by us should be for cost-effective demand-side renewable systems. In addition, we should determine how to comply with FEECA directives without placing an undue financial burden on non-participating customers. PCS Phosphate states in its brief that goals proposed by DEF represent a reasonable balance of FEECA's requirements and the cost and rate impacts to Florida consumers.

### Analysis

Section 366.81, F.S., states, “. . . the Legislature finds and declares that it is critical to utilize the most efficient and cost-effective demand-side renewable energy systems and conservation systems in order to protect the health, prosperity, and general welfare of the state and its citizens.” Later in this same Section it states, “Since solutions to our energy problems are

complex, the Legislature intends that the use of solar energy, renewable energy sources, highly efficient systems, cogeneration, and load-control systems be encouraged.”

Section 366.82, F.S., requires us to adopt appropriate goals for increasing the development of demand-side renewable energy systems. In developing the goals we shall take into account the benefits and costs to the consumer participating in the measure and the benefits and costs to the general body of ratepayers.

We found in the 2009 goal setting proceeding that solar measures did not pass the cost-effectiveness tests. However, we ordered the IOUs and FPUC to offer solar pilot programs in order to address the intent of the Legislature to place added emphasis on demand-side renewable resources.<sup>21</sup> We established a spending cap in order to protect ratepayers from undue rate increases.<sup>22</sup> The spending cap was established at 10 percent of the ECCR expenditures the last five years, and amounted to \$24,483,051 a year for the five IOUs combined.<sup>23</sup>

Solar PV have been steadily growing in Florida. As seen in Table 6-1, from 2011-2013, 2,824 new solar installations have been added by the four largest IOUs. These new solar installations are from residential and business customers. This amount includes both systems installed that received a rebate and those systems for which no rebate was received.

**Table 6-1 - Number of Solar PV Installations**

Utility	2011	2012	2013	Total
<b>FPL</b>	531	553	467	1551
<b>DEF</b>	233	309	323	865
<b>TECO</b>	71	117	109	297
<b>Gulf</b>	n/a	69	42	111
<b>Total</b>	835	1048	941	2,824

In addition to the solar pilot programs discussed, it appears that at least three factors have contributed to the growth of solar PV in the state over the past few years: Federal income tax incentives, the decreasing cost of installed solar PV, and our Rule 25-6.065, F.A.C., Interconnection and Net Metering of Customer-Owned Renewable Generation.

#### Federal Income Tax Incentives

The Federal Government has enacted laws that provide tax credits for solar installations made by residential and business customers. Current Federal tax law provides a 30 percent tax credit for personal and corporate solar systems installed by December 31, 2016. There is no

<sup>21</sup> See Order No. PSC-09-0855-FOF-EG, issued December 30, 2009, in Docket Nos. 080408-EG, 080409-EG, 080410-EG, 080412-EG, 080413-EG, In re: Commission Review of numeric Conservation Goals.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

maximum credit for the personal or corporate tax credit. Recipients of the personal tax credit may carry forward the tax credit to the next year if they do not have a tax liability.

#### Decreasing Cost of Installed Solar Photovoltaic Systems

DEF witness Duff testified that the cost of installed solar PV dropped for residential installations from \$5.01/watt<sub>dc</sub> in 2011 to \$4.13/watt<sub>dc</sub> in 2013. The cost of commercial installations dropped even more, from \$5.33/watt<sub>dc</sub> in 2011 to \$3.89 in 2013. FPL and TECO report similar decreases in the cost of installed solar PV. Gulf reports the installed cost of PV systems (residential and commercial) has dropped from an average of \$5.54/watt<sub>dc</sub> in 2011 to \$3.42 per watt for systems being installed in 2014. Gulf witness Floyd contends this price drop reflects a national trend of declining solar PV prices.

According to DEF witness Duff, “Over the course of the five years since that Commission order, the costs of solar technology has decreased and the subscription rates for solar devices have increased, mainly because solar technology has advanced since that time.”

#### Rule 25-6.065, F.A.C., Interconnection and Net Metering of Customer-Owned Renewable Generation

The Florida Legislature has established policies to require utilities to facilitate customer-owned renewable energy resources. Sections 366.91(5) and (6), F.S., require electric utilities to develop a standardized interconnection agreement and net metering program for customer-owned renewable generation. The purpose of Rule 25-6.065, F.A.C., is to promote the development of small customer-owned renewable generation, particularly solar and wind energy systems.

A customer primarily benefits from a renewable energy system by using the energy for his own purposes and thus reducing electricity purchases from the utility. Our rule requires each IOU to file for approval a Standard Interconnection Agreement for expedited interconnection of customer-owned renewable generation for systems up to 2 MW. The agreements specify nationally recognized standards for interconnection and safety for renewable systems to be interconnected with the utility.

In addition, the rule provides direction for the application and interconnection process, detailing specific due dates for action by the utility and the customer. The rule also requires the IOUs to submit for Commission approval all fees and charges related to the interconnection of customer-owned renewable generation. The rule acts to minimize costs associated with fees and liability insurance that customers might otherwise experience when attempting to interconnect renewable systems to their utility.

The rule recognizes the seasonal nature of some renewable energy resources and allows for a billing adjustment through net metering. During times when the customer’s system produces more energy than is consumed on-site, the excess energy is delivered to the utility’s grid and the excess energy is credited to the next month’s utility bill. At the end of the calendar

year, any excess energy is credited on the bill at the utility's cost of producing energy (fuel). DEF witness Duff testified that the rule will continue to be available to customers.

### Community Solar

FPL witness Koch recommended a community solar program that is voluntary and community-based. Witness Koch testified that the program would be an efficient way to promote solar to customers who cannot afford to install panels on their own property and would not rely upon subsidies from non-participants. The system would be grid-tied on utility owned property and not be a demand-side renewable.

DEF witness Duff testified that DEF would recommend a community solar program that:  
. . . would involve DEF using the existing solar set aside dollars to build utility-owned solar generation to initially serve all customers that could eventually be used as a community solar offering allowing individual customers to meet their renewable energy goals.

EDF witness Fine testified that utilities should establish a utility-owned commercial PV program to allow utilities to make more investments in PV. SACE witness Rabago testified that community solar programs provide an opportunity to allow more customers to participate in the benefits that distributed solar provides.

However, in its brief, SACE contends:

A utility owned solar system is a supply-side renewable. Nothing about the proposed solar conceptual programs proposed by FPL and DEF are demand-side in nature. A supply-side resource is not typically placed on the premise of a customer, and it certainly cannot assist that customer in offsetting the customer's electricity requirements. As such, the conceptual programs, such as these, are not consistent with the FEECA statute.

We find that community solar does not promote the development of demand-side renewables. While the development of utility scale solar may have many benefits, it does not comply with Section 366.82, F.S., because it is a supply-side source, not demand-side.

### Research and Development

FPL witness Koch recommends a solar research and development project. Witness Koch testified that FPL could benefit from additional research with a variety of PV installations located through their service territory. Each of these installations would be metered and instrumented to gather more information. In addition, FPL would rely upon data gathered at the Desoto and Space Coast installations.

Witness Koch testified that the use of a utility research and development project would be more useful due to the utility's ability to obtain more information. He opined that FPL has learned little from the current pilots other than that, ". . . people will rush to get in line for giveaways."

EDF, Sierra Club, and Walmart also suggest that a Research & Development (R&D) program be conducted; however, they think the study should focus on the true costs and benefits of solar to the Florida utilities. SACE witness Rabago recommends a workshop with our staff, utilities, and stakeholders to create a VOS methodology similar to that now in place in Minnesota.

There is not sufficient value for ratepayers to warrant establishing new research and development PV programs at this time. Both FPL and DEF currently have solar R&D programs. FPL also has accumulated data from the 110 MWs of installed solar that were installed due to 2008 Legislation, and has conducted research similar to their proposed R&D program at these sites. Accordingly, we find that no additional solar R&D be approved at this time.

### Decision

Each of the IOUs should continue to implement the provisions of Rule 25-6.065, F.A.C., Interconnection and Net Metering of Customer-Owned Renewable Generation. The rule is an appropriate means to encourage the development of demand-side renewable energy, as it expedites the interconnection of customer-owned renewable energy systems and benefits participating customers through net metering.

### **EXISTING SOLAR PILOT PROGRAMS**

The IOUs and the NAACP believe that the existing solar pilot programs should be allowed to expire. The solar pilot programs were not cost-effective when established in 2009, and continue not to be cost-effective. The solar pilot programs failed the RIM and TRC cost-effectiveness tests and created a cross-subsidy from non-participants to participants that caused upward pressure on rates. The NAACP contends that "cross subsidization can result in rates that are higher than otherwise fair and equitable." Gulf asserted that these programs reflect the worse type of cross-subsidization -- from low-income customers to high-income customers.

Conversely, EDF, SACE and Walmart contend the solar pilot programs should be extended. EDF recommends an independently supervised study of the costs and benefits of distributed solar and a redesign of the incentives to enhance cost-effectiveness. The Sierra Club believes a study should be conducted to investigate the effectiveness of the rebate programs and the role of utility-owned solar PV. Sierra Club also advocated an update of the marketing and incentive approaches for PV programs, to minimize the amount of incentives paid while installing as much PV as possible.

SACE asserts we would benefit from a Value of Solar analysis to determine the appropriate costs and benefits of distributed solar on a utility's system. Extending the current solar programs would provide an opportunity for a thorough examination of the costs and benefits of solar energy, and to develop a Value of Solar methodology.

FIPUG believes the solar pilot programs should not be extended in their present forms without a thorough review and appropriate modifications.

OPC does not take a position on extending the solar pilot programs. However, if extended, the programs should comply with provisions of FEECA and protect the general body of ratepayers from undue impact on rates.

FDACS believes any goals set by us to meet FEECA directives should be cost-effective and avoid subsidization by the general body of ratepayers. Placing an undue financial burden on non-participants should be avoided. PCS Phosphate did not offer argument.

### Analysis

In 2008, the Legislature amended Section 366.82, F.S., such that when DSM goals are established, we are required to establish appropriate goals to encourage the development of demand-side renewable energy systems. "Demand-side renewable energy" is defined as a system located on a customer's premises using Florida renewable energy resources with a capacity that does not exceed 2 MWs.<sup>24</sup> The system must be designed to offset part or all of a customer's energy needs.

Because of the revisions to the statute, we requested that the utilities address demand-side renewables in the 2009 goals proceeding.<sup>25</sup> Demand-side renewables were not found to be cost-effective in the analyses conducted by the utilities. However, based on evidence presented during the proceeding, we ordered that the IOUs develop and offer pilot programs in order to encourage such resources. In order to minimize the rate impacts to all customers, we ordered the cost for these programs be limited to 10 percent of each utility's five-year average for costs recovered through the ECCR Clause.<sup>26</sup>

We directed the IOUs to file pilot programs focusing on encouraging solar water heating and solar PV technologies in the DSM program approval process.<sup>27</sup> Each of the IOUs filed for approval of their Solar Rebate programs.<sup>28</sup> Each utility provided rebates for residential and

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<sup>24</sup> See Section 366.82(1)(b), F.S.

<sup>25</sup> See Order No. PSC-09-0855-FOF-EG, issued December 30, 2009, in Docket Nos. 080408-EG, 080409-EG, 080410-EG, 080412-EG, 080413-EG, In re: Commission Review of numeric Conservation Goals.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

<sup>28</sup> FPL - See Order No. PSC-11-0079-PAA-EG, issued January 31, 2011 in Docket No. 100155-EG, In re: Petition for approval of demand-side management plan of Florida Power & Light Company.

DEF - See Order No. PSC-10-0605-PAA-EG, issued October 4, 2012 in Docket No. 100160-EG, In re: Petition for approval of demand-side management plan of Progress Energy Florida, Inc.

commercial PV with rebates up to \$2.00 a watt. Rebate programs were also established for solar water heating. Residential customers installing a water heating system received a rebate of \$550 to \$1,000, depending on their utility. FPL offered a business water heating program that provided a rebate of \$30 per 1,000 Btu/day. Each of the Utilities provided systems to qualifying schools at no charge under the Solar for Schools PV program and offered free low-income water heating programs. The IOUs were directed to collect information relating to customer acceptance rates, energy production, and other data to refine potential future program offerings for solar technologies.<sup>29</sup>

**Table 7-1: Pilot Program Rebates**

Utility	Program	Amount of Rebate
<b>FPL</b>		
	Residential PV	\$2.00/watt \$20,000 max
	Business PV	\$2.00/watt first 10kW, \$1.50/Watt 10-25KW, \$1.00/watt >25kW \$50,000 max
	Residential Water Heating	\$1,000
	Business Water Heating	\$30 per 1,000 Btu/day \$50,000 max
<b>TECO</b>		
	Residential PV	\$2.00/watt \$20,000 max
	Commercial PV	\$2.00/watt \$20,000 max
	Residential Water Heating	\$1,000
<b>Gulf</b>		
	Residential PV	\$2.00/watt \$10,000 max
	Commercial PV	\$2.00/watt \$10,000 max
	Solar Thermal Water Heating - Residential	\$1,000
<b>DEF</b>		
	Residential PV	\$2.00/watt \$20,000 max
	Commercial PV	\$2.00/watt first 10KW, \$1.50/Watt 11-50KW, \$1.00/watt 51-100kW
	Residential (SWH)w/ Energy Management	\$550

TECO - See Order No. PSC-10-0607-PAA-EG, issued October 4, 2012 in Docket No. 100159-EG, In re: Petition for approval of demand-side management plan of Tampa Electric Company.

Gulf - See Order No. PSC-10-0608-PAA-EG, issued October 4, 2012 in Docket No. 100154-EG, In re: Petition for approval of demand-side management plan of Gulf Power Company.

<sup>29</sup> Ibid.

Results of Solar Pilot Programs**FPL**

FPL has implemented three types of solar pilot programs: solar water heating; photovoltaic; and research and demonstration. The solar water heating programs included special programs for residential, business, and low-income, new construction customers. Photovoltaic programs were designed for residential and business customers. The business program included a special carve out program to install PV on schools at no charge.

These programs were implemented on a first-come first-served basis and helped approximately 4,000 customers during 2011-2013 at a cost of \$30 million, as seen on Table 7-2. FPL expended approximately \$7,500 on the average installation. FPL reports some installations for 2013 are still pending.

**Table 7-2: FPL Solar Pilot Programs (2011-2013)**

<b>Program Name</b>	<b>Number of Participants</b>
Solar Water Heating - Residential & Low Income New Construction	2,968
Solar Water Heating - Business	38
Photovoltaic (PV) - Residential	774
Photovoltaic (PV) - Business	153
Photovoltaic (PV) - Business PV for Schools	29
Research & Demonstration	n/a
Non-program Specific	n/a
<b>TOTAL PARTICIPANTS</b>	<b>3,962</b>
<b>TOTAL EXPENDITURES</b>	<b>\$29,853,514</b>
<b>AVG. EXPENDITURE PER PARTICIPANT</b>	<b>\$7,535</b>

The photovoltaic pilot programs had high participation. Residential and business customers quickly submitted requests for reservations each time an offering was announced. However, an average of 75 percent of the residential customers who received a pilot program reservation, actually installed solar PV equipment. The business customers had a lower average completion rate of 50 percent.

The Residential and Low-Income Solar Water Heating pilot program was initially popular. The 2011 and 2012 offerings had a high number of reservations and installations. However, in 2013 the number of reservations dropped by almost 73 percent, from 1,491 to 428. Only 47 residential and low-income solar water heaters were installed in 2013.

FPL partnered with Habitat for Humanity to provide solar water heaters for low-income customers at no cost to the customer. FPL retained ownership of the solar arrays installed under the Solar for Schools program for the first five years. FPL provided maintenance during that time.

The Research and Demonstration pilot largely consisted of the installation of solar panels on science museums in FPL's service territory. These museums are dedicated to education and provided an appropriate venue for demonstrating renewable energy. FPL also conducted research on solar-powered swimming pool pumps.

FPL states that these solar pilot programs are not cost-effective, failing both the RIM and TRC cost-effectiveness tests. Table 8-3, reflects that these solar pilot programs also failed the Participants test, with the exception of the Low-Income New Construction Solar Hot Water Heater and the Solar PV for Schools pilots. However, FPL provided these two solar programs at no charge to the recipients.

**Table 8-3: FPL Solar Pilot Programs: Cost-Effectiveness Test Results**

Solar Pilot Program	Benefit Cost Ratio		
	RIM	TRC	Participant
Solar Water Heating - Residential	0.51	0.18	0.50
Solar Water Heating - Low Income New Construction	0.21	0.28	1.52
Solar Water Heating - Business	0.34	0.19	0.58
Photovoltaic (PV) - Residential	0.46	0.27	0.74
Photovoltaic (PV) - Business	0.64	0.33	0.67
Photovoltaic (PV) - Business PV for Schools	0.13	0.15	1.19

FPL witness Koch testified that these solar pilot programs are not an efficient and equitable way to encourage the development of demand-side solar energy and should be allowed to expire.

## DEF

DEF implemented six solar pilot programs: Solar Water Heating for Low Income Residential Customers, Solar Water Heating with Energy Management, Residential Solar Photovoltaic, Commercial Photovoltaic, Photovoltaic for Schools, and a Research and Demonstration Project.

As seen in Table 8-4, there were 1,318 DEF customers that participated in a solar pilot program at a total cost of \$13,788,013 during 2011-2013. The average incentive cost approximately \$10,461 per installation.

**Table 8-4: DEF Solar Pilot Programs (2011-2013)**

<b>Program Name</b>	<b>Number of Participants</b>
Solar Water Heating Low Income - Residential	63
Solar Water Heating Energy Mgmt. - Residential	847
Photovoltaic (PV) - Residential	346
Photovoltaic (PV) - Commercial	39
Photovoltaic (PV) for Schools	23
Research and Demonstration	n/a
<b>TOTAL PARTICIPANTS</b>	<b>1,318</b>
<b>TOTAL EXPENDITURES</b>	<b>\$13,788,013</b>
<b>AVG. EXPENDITURE PER PARTICIPANT</b>	<b>\$10,461</b>

Like FPL, DEF's residential and commercial solar PV pilot programs were popular and had high participation. As seen on Table 8-4, there were 346 residential customers and 39 commercial customers that participated in the photovoltaic pilot programs.

DEF's average 2011-2013 completion rate for residential PV systems was 64 percent, while it was 45 percent for business systems. For this same period, the average completion rate for solar water heating with load management was 87 percent.

DEF worked with Habitat for Humanity to provide solar hot water heaters to low-income customers in new construction. DEF fully funded the cost of installation and the equipment costs.

The DEF Solar Water Heating with Energy Management program is unique because it combines the hot water heating program with a demand response program. The participating customers receive an up-front rebate of \$550 and a monthly bill credit for participating in the load management program.

The Research and Demonstration Pilot consisted of DEF working with the Electric Power Research Institute (EPRI), the University of Central Florida, and the University of South Florida to study various applications of wind and solar renewable energy. Some of the projects included: a study of small-scale wind energy potential, data collection for a distributed photovoltaic study, and a study of a PV array and energy storage system.

As seen in Table 8-5, all programs failed the RIM and TRC cost-effectiveness tests. DEF witness Duff asserted that most solar pilot programs passed the participant test due to the availability of Federal tax credits and the DEF subsidy.

**Table 8-5: DEF Solar Pilot Programs: Cost-Effectiveness Test Results**

Solar Pilot Program	Benefit Cost Ratio		
	RIM	TRC	Participant
Solar Water Heating for Low-income Residential	0.274	0.454	1.83
Solar Water Heating with Energy Management	0.596	0.580	0.79
Photovoltaic - Residential	0.376	0.547	1.23
Photovoltaic - Commercial	0.422	0.628	1.35
Photovoltaic for Schools	0.141	0.163	1.18

DEF witness Duff believes the solar pilot programs should not be continued because they are not cost-effective and the market for customer-owned photovoltaic has matured over the past five years.

### TECO

Tampa Electric Company implemented the following solar pilot programs: Photovoltaic – Residential and Commercial; PV Systems for Schools; Solar Water Heating – Residential; and, Solar Water Heating - Low Income.

**Table 8-6: TECO Solar Pilot Programs (2011-2013)**

Program Name	Number of Participants
Photovoltaic (PV) - Residential	168
Photovoltaic (PV) - Commercial	24
PV Systems for Schools	3
Solar Water Heating - Residential	120
Solar Water Heating - Low Income	10
<b>TOTAL PARTICIPANTS</b>	<b>325</b>
<b>TOTAL EXPENDITURES</b>	<b>\$3,793,723</b>
<b>AVG. EXPENDITURE PER PARTICIPANT</b>	<b>\$11,673</b>

Table 8-6, reflects that during 2011-2013, TECO distributed \$3,793,723 to fund 325 solar pilot installations. This resulted in an average incentive of \$11,673 per installation. During the period 2011-2013, TECO's completion rate (installations divided by reservations) for residential PV systems was 62 percent, while the rate for business PV was 46 percent. During this same period the average completion rate for residential solar water heating was lower, at 24 percent.

The photovoltaic pilot programs were very popular with residential and commercial customers and were fully subscribed and quickly reserved each year. Customers had less interest than expected in the solar water heating pilot. Unused funds were redistributed from the solar hot water heating pilot to the photovoltaic pilots.

TECO offered five low-income water heating systems per year. Like FPL and DEF, TECO worked with Habitat for Humanity and other non-profit organizations to provide solar water heating on newly constructed homes.

The PV Systems for Schools program was in collaboration with the Florida Solar Energy Center Sunsmart/E-Shelter program. The Sunsmart/E-Shelter program involved installing photovoltaic panels on schools that were also being used as emergency shelters. TECO installed one PV system per year. The installed systems were up to 10kW and included battery backups.

As shown on Table 8-7, the solar pilot programs were not cost-effective:

**Table 8-7: TECO Solar Pilot Programs: Cost-Effectiveness Test Results**

Solar Pilot Program	Benefit Cost Ratio		
	RIM	TRC	Participant
Residential PV	0.38	0.41	1.20
Commercial PV	0.40	0.39	1.10
Residential Solar Water Heating	0.56	0.28	0.71

TECO witness Bryant contends that the solar pilot programs should not be continued. According to witness Bryant “cross-subsidies are flowing from non-participants to the participants without sufficient, cost-effective benefits being received by the non-participants.” The TECO witness also stated, “It is simply not a responsible use of ratepayer dollars to promote these programs under any cost-effectiveness test.”

### **Gulf**

Gulf Power Company’s solar pilot programs included photovoltaic for residential and commercial customers, PV systems for schools, and solar thermal water heating systems for residential and low-income customers. The photovoltaic pilot was popular and fully subscribed every year. However, customer interest in the solar thermal water heating pilot was less than Gulf had projected. Unlike FPL, TECO, or DEF, Gulf reported that its installations equaled its reservations, thus yielding a 100 percent completion rate.

As shown on Table 8-8, from 2011 through 2013, Gulf provided incentives to a total of 240 customers at a total cost of \$2,300,000. The average incentive per installation was \$9,583.

**Table 8-8: Gulf Solar Pilot Programs (2011-2013)**

<b>Program Name</b>	<b>Number of Participants</b>
Photovoltaic (PV) - Residential & Commercial	132
PV Systems for Schools	2
Solar Water Heating - Residential	76
Solar Water Heating - Low Income	30
Administrative Expenses	n/a
<b>TOTAL PARTICIPANTS</b>	<b>240</b>
<b>TOTAL EXPENDITURES</b>	<b>\$2,300,000</b>
<b>AVG. EXPENDITURE PER PARTICIPANT</b>	<b>\$9,583</b>

The PV for schools program was designed to install a PV system on one school per year in collaboration with the Florida Solar Energy Center E-Shelter program. Each system was up to 10 kW. No school was selected in 2011, but in 2012 and 2013, one PV system was installed each year to a school.

Solar thermal water heaters were offered to low-income customers at no expense to the customer. Gulf offered up to 15 solar thermal water heaters each year. Participation in this program was below Gulf's projections due to an increase in the installed cost of solar water heating systems from 2011-2013, and there being more cost-effective alternatives. In addition, many low-income customers could not afford to pay the long-term maintenance of the systems.

Like FPL, DEF and TECO, the Gulf solar programs were not cost-effective as shown on Table 8-9.

**Table 8-9: Gulf Solar Pilot Programs: Cost-Effectiveness Test Results (2011-2013)**

<b>Solar Pilot Program</b>	<b>Benefit Cost Ratio*</b>		
	<b>RIM</b>	<b>TRC</b>	<b>Participant</b>
Solar PV (combined residential and commercial)	0.88	0.67	1.005 – 1.05
Solar Thermal Water Heating (Single Family)	0.74	0.56	0.98

\* Results shown above did not include incentive payments

Gulf witness Floyd opined, "Cost-effectiveness is an important consideration in this docket, and it's the primary means of protecting the interests of Gulf's customers. Despite the well-publicized decreases in the cost of distributed PV systems, incenting these systems actually costs our customers more than the benefits they provide to the utility system."

Solar Trends: Costs and InstallationsPhotovoltaic Pilot Programs

The photovoltaic pilot programs of all four IOUs were fully subscribed each year shortly after the program reservations were made available. According to DEF witness Duff, “Over the course of the five years since that Commission order, the costs of solar technology has decreased and the subscription rates for solar devices have increased, mainly because solar technology has advanced since that time.”

DEF reported that the installed cost of solar PV dropped for residential installations from \$5.01/watt in 2011 to \$4.13/watt in 2013. The installed cost of commercial installations dropped even more, from \$5.33/watt in 2011 to \$3.89 in 2013. FPL and TECO reported similar decreases in the installed cost of solar PV. Gulf reported the installed cost of PV systems (residential and commercial) has dropped from an average of \$5.54/watt in 2011 to \$4.27 per watt for systems being installed in 2013. Gulf witness Floyd contended that this price drop reflects a national trend.

During the period 2011 to 2013, the cost of installed PV throughout the nation had been decreasing. According to DEF witness Duff, the “. . . broader U. S. residential market has seen significant declines from about \$5.03/watt from Q4 2012 to \$4.59/watt in Q4 2013.” (TR 529) TECO witness Bryant contended the existence of the Florida incentive program did not cause the price decrease.

The number of Florida customers (residential and commercial) installing solar PV has been growing. Table 8–10 shows that over 2,800 new solar PV installations were made from 2011 to 2013.

**Table 8-10: Number of Solar PV Installations**

Utility	2011	2012	2013	Total
<b>FPL</b>	531	553	467	<b>1,551</b>
<b>DEF</b>	233	309	323	<b>865</b>
<b>TECO</b>	71	117	109	<b>297</b>
<b>Gulf</b>	n/a	69	42	<b>111</b>
<b>Total</b>	<b>835</b>	<b>1,048</b>	<b>941</b>	<b>2,824</b>

However, not everyone in Florida who installed solar PV on their home or business received a rebate or incentive from his/her utility. For example, DEF reported that of its customer PV installations made during 2011-2013, 46 percent of residential and 83 percent of commercial installations were made without receiving a DEF rebate or incentive. The other FEECA Utilities reported similar results.

Solar Thermal Water Heating Programs

FPL witness Koch testified that the Residential Solar Hot Water Program actually experienced an increase in its installed cost. He asserted that the average installed cost increased from \$5,700 per installation in 2011 to \$7,200 in 2013.

TECO witness Bryant testified that the average cost for a solar hot water heating systems had seen a modest increase in price. Witness Bryant testified that this was due to inflationary impacts and changes to the system size being installed.

Gulf witness Floyd testified that the installed cost for solar water heating increased between 2011 and 2013. Witness Floyd opined that customers are unwilling to make such a significant investment when alternatives, such as a heat pump water heater, are more cost-effective.

In contrast to the PV pilot programs, participation in the solar water heating programs for the IOUs was less than expected. TECO witness Bryant testified that its solar water heater pilot had moderate success, with 49 participants in the pilot. Unused funds were transferred to the more popular solar PV pilot program. Similarly, DEF witness Duff asserted that customers did not respond as well as expected to the solar water heater program. From 2011-2013, DEF reallocated \$1,959,940 from the solar water heater programs to the solar PV programs to meet the soaring demands for PV. None of the intervenor or utility witnesses has recommended the continuation of the solar thermal programs.

#### Summary of Solar PV Customers and Incentives

The IOUs all agree that the solar pilot programs were not cost-effective and the general body of ratepayers - in particular, non-participants - have been subsidizing the incentives provided to participants installing solar PV. According to FPL witness Koch, the FPL average incentive from 2011-2013 for installing solar PV was about \$16,500, while the average incentive from DEF for installing residential PV was \$15,962 and TECO was \$14,028. The average Gulf incentive for residential and business solar PV was \$9,765. As testified by TECO witness Bryant, “. . . cross-subsidies are flowing from non-participants to the participants without sufficient, cost-effective benefits being received by the non-participants.”

DEF witness Duff testified that the average household income for solar PV customers in its service territory was \$100,926, and the average size home on which solar PV was installed was 3,133 sq. feet, with an estimated value of \$350,903. Gulf witness Floyd also stated that its solar PV customers were more affluent, with 76 percent of solar pilot participants having an annual income greater than the northwest Florida median income of \$47,800. Gulf witness Floyd further provided that housing values for 63 percent of solar PV participants exceeded the northwest Florida median value of \$170,000.

During the hearing, alternatives were discussed relating to the continuation of the solar pilot programs. EDF witness Fine recommended that we “ratchet down” the amount of the utility rebates. Witness Fine proposed that the total dollars allocated to the rebate programs remain unchanged and the individual rebates be reduced as the cost of installed systems falls.

Witness Fine made no specific recommendations on rebate levels. In discussing cost trends of solar, witness Fine testified, “It is no wonder the Utilities have experienced very strong customer interest in the incentive program. It is also obvious that the amount of incentive for average or above-average electricity consuming homes can be ratcheted downward over time.” Lowering the rebate level would generally improve the RIM cost-effectiveness results, but would lower the Participants test results.

### Value of Solar

A VOS analysis identifies and characterizes the attributes of solar generation by characterizing and quantifying the costs avoided by solar generation. SACE witness Rabago testified that a VOS analysis is an expansion on a full avoided cost approach that adds a long term value perspective that includes societal costs and benefits.

SACE witness Rabago and EDF witness Fine recommended that we adopt a VOS methodology, specifically the Minnesota Model. EDF witness Fine testifies that under a VOS methodology we could identify all the costs and benefits associated with a PV installation.

Witness Rabago asserted that renewable generation is undervalued by the utilities. He testified that the cost-effectiveness tests employed by the IOUs do not account for the full value of solar. Witness Rabago testified that:

VOS analysis is an expansion on a full avoided cost approach that adds a long term valuation perspective, including, as appropriate and quantifiable, social costs and benefits. There are two basic steps: first, benefits and costs are identified and grouped, then, second, the benefits are quantified. These steps are essentially the same as traditional ratemaking functions inherent in cost of service analysis. The focus is on the net value that distributed resources bring to utility and grid finances and operations.

FPL witness Sim countered that the VOS methodology is not a cost-effectiveness test, ignores well-known system cost impacts, and thus overstates DSM PV benefits, and takes a one-sided view of DSM PV. He testified that the proposed VOS methodology only examines the benefits of solar. For example, the FPL witness testified that the VOS methodology does not appear to account for administrative costs or examine whether a proposed solar program would have any impact on future rates. Witness Sim concluded that the VOS methodology only examines system benefits and ignores system costs.

Witness Sim recommended that we continue using the RIM test and disregard the VOS methodology. Witness Sim testified that the VOS methodology is an incomplete and one-sided compilation of benefits. Florida’s approach of looking at actual costs is more appropriate than using the projections in the VOS methodology. FPL witness Deason testified that, “The Commission has had a long history of implementing FEECA in a manner that works to minimize rate impacts on all customers and prevent cross-subsidizations among customers.” FPL witness

Sim testified that “Using the VOS approach may be fine for someone who wished to promote any type of PV use regardless of whether it is cost-effective for a utility’s customers.”

We do not find it appropriate to adopt a VOS methodology as it is not a cost-effectiveness test and there is not sufficient evidence in the record to support further efforts to explore this option. Since the VOS methodology is not a true cost-effectiveness test, it therefore shall not be relied upon to evaluate programs in a DSM portfolio. Moreover, the VOS methodology does not provide any information about the potential effect of solar on rates.

Record evidence indicates that reducing the rebate levels will not make the Solar PV programs cost-effective. Even if we eliminated all rebates, the programs would continue to fail the RIM and TRC tests.

TECO witness Bryant summed up why these solar pilots should be terminated:

These subsidizing payments made through the collection of pilot program costs in the ECCR Clause are being levied against the non-participating general body of ratepayers who are not receiving their commensurate level of benefits. It is simply not a responsible use of ratepayer dollars to promote these programs under any cost-effectiveness test.

Moreover, lessons learned from the pilots cast doubt on the extent to which primary driver contributed to the development of solar demand-side renewable energy systems. Instead, continuing to promote the provisions of Rule 25-6.065, F.A.C., is an appropriate way to encourage the development of demand-side renewables. Accordingly, we find it appropriate that the solar pilots shall be allowed to expire December 31, 2015.

### Decision

The existing solar pilot programs shall continue through December 31, 2015. The programs are not cost-effective and experience gained since the last goals proceeding indicates that consumers have continued to install systems without any rebates. The current solar rebates represent a large subsidy from the general body of ratepayers to a very small segment of each utility’s customers. However, we direct our staff to move forward with a workshop to thoroughly address the solar issues discussed during the November 25, 2014, Commission Agenda Conference.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that Florida Power & Light Company’s residential winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Florida Power & Light Company's commercial/industrial winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Duke Energy Florida, Inc.'s residential winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Duke Energy Florida, Inc.'s commercial/industrial winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Gulf Power Company's residential winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Gulf Power Company's commercial/industrial winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Tampa Electric Company's residential winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that Tampa Electric Company's commercial/industrial winter demand, summer demand, and annual energy conservation goals for the period 2015-2024 are hereby approved as set forth herein. It is further

ORDERED that JEA's Settlement Agreement is attached as Attachment A and is by reference incorporated into this Order. It is further

ORDERED that Orlando Utilities Commission and Florida Public Utilities Company shall file numeric conservation goals based upon the proxy utilities, TECO and Gulf, respectively, within ten days of this Order. It is further

ORDERED that within 90 days of the issuance of this Order, each utility shall file a demand-side management plan designed to meet the utility's approved goals. It is further

ORDERED that the existing solar pilot programs shall continue through December 31, 2015 as set forth herein. It is further

ORDERED that our staff is directed to move forward with a workshop to thoroughly address the solar issues discussed at the November 25, 2014, Commission Agenda Conference. It is further

ORDER NO. PSC-14-0696-FOF-EU

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130205-EI

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ORDERED that these dockets shall be closed if no appeal is filed within the time period permitted for filing an appeal of this Order.

By ORDER of the Florida Public Service Commission this 16th day of December, 2014.

/s/ Carlotta S. Stauffer

CARLOTTA S. STAUFFER

Commission Clerk

Florida Public Service Commission

2540 Shumard Oak Boulevard

Tallahassee, Florida 32399

(850) 413-6770

www.floridapsc.com

Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

TLT

COMMISSIONERS LISA POLAK EDGAR AND JULIE I. BROWN, DISSENT ON ISSUES 1-9, AS IDENTIFIED IN ORDER NO. PSC-14-0356-PHO-EU, WITHOUT OPINION.

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Office of Commission Clerk, and filing a

20190018-DEF-0040881

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copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

Docket Nos. 130199-EI, 130200-EI,  
~~130201-EI, 130202-EI, 130203-EM~~  
Date: November 13, 2014

ATTACHMENT A

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Commission review of numeric  
conservation goals (JEA).

DOCKET NO. 130203-EM  
ORDER NO.  
ISSUED:

**JEA PROPOSED STIPULATION ON ISSUES**

**ISSUE 1:** Are the Company's proposed goals based on an adequate assessment of the full technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems, pursuant to Section 366.82(3), F.S.?

**PROPOSED STIPULATION:** Yes. JEA's proposed goals are based on an adequate assessment of the full technical potential of all available demand-side and supply-side conservative and efficiency measures, including demand-side renewable energy systems, pursuant to Section 366.82(3), F.S. (Vento, Wucker)

**ISSUE 2:** Do the Company's proposed goals adequately reflect the costs and benefits to customers participating in the measure, pursuant to Section 366.82(3)(a), F.S.?

**PROPOSED STIPULATION:** Yes. JEA's proposed goals adequately reflect the costs and benefits to customers participating in the measure, pursuant to Section 366.82(3)(a). JEA's proposed goals are based on forecasts of achievable potential that are driven primarily by measure-level assessments of cost-effectiveness to customers. Specifically, customer cost-effectiveness is assessed using the Participant Test, where benefits are calculated based on customer bill savings and costs are based on participant costs of acquiring and installing the energy efficiency measure (net of utility program incentives). Both the participant benefits and participant costs are assessed on present value basis over the life of the measure. (Vento, Wucker)

**ISSUE 3:** Do the Company's proposed goals adequately reflect the costs and benefits to the general body of rate payers as a whole, including utility incentives and participant contributions pursuant to Section 366.82(3)(b), F.S.?

**PROPOSED STIPULATION:** Yes. JEA's proposed goals are based on achievable potential that included consideration of the costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions, through use of the RIM and Participant tests. (Vento, Wucker)

**ISSUE 4:** Do the Company's proposed goals adequately reflect the need for incentives to promote both customer-owned and utility-owned energy efficiency and demand-side renewable energy systems, pursuant to Section 366.82, F.S.?

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JEA PROPOSED STIPULATION ON ISSUES  
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**PROPOSED**

**STIPULATION:** Yes. JEA has comprehensively analyzed customer-owned energy efficiency measures and none were found to be cost-effective. JEA's load forecast reflects the impacts of net metering associated with customer-owned rooftop solar photovoltaic (PV) systems, and this load forecast was used as the basis for the cost-effectiveness analysis performed for this Docket. As such, incentives to promote customer-owned demand-side renewable energy systems are adequately reflected in JEA's proposed goals. Utility-owned energy efficiency and renewable energy systems are supply-side issues. (Vento, Wucker)

**ISSUE 5:**

**Do the Company's proposed goals adequately reflect the costs imposed by state and federal regulations on the emission of greenhouse gases, pursuant to Section 366.82(3)(d), F.S.?**

**PROPOSED**

**STIPULATION:** Yes. There currently are no costs imposed by State and Federal regulations on the emissions of greenhouse gases (GHG). JEA will consider the US Environmental Protection Agency's GHG emissions guidelines for existing power plants in its resource planning and DSM portfolio review efforts when there is a clear indication of what those guidelines may ultimately require or their associated costs. Further, pursuant to Section 366.82(6), Florida Statutes, the Commission may change the goals for a reasonable cause. Once the costs associated with any EPA regulations on the emission of GHGs are known, the Commission has the authority to review established goals. (Vento, Wucker)

**ISSUE 6:**

**What cost-effectiveness test or tests should the Commission use to set goals, pursuant to Section 366.82, F.S.?**

**PROPOSED**

**STIPULATION:** For purposes of setting goals for JEA pursuant to Section 366.82, Florida Statutes, the Commission should continue to evaluate cost-effectiveness using the tests set forth in Chapter 25-17, F.A.C., and the publication "Florida Public Service Commission Cost Effectiveness Manual for Demand Side Management Programs and Self-Service Wheeling Proposals (7-7-91), with consideration of JEA's status as a municipal utility. Because the RIM test ensures no impact to customers' rates, it is particularly appropriate in establishing DSM goals for municipal utilities, such as JEA. Local governing is a fundamental aspect of public power. It provides the necessary latitude to make local decisions regarding the community's investment in energy efficiency that best suit our local needs and values. Accordingly, as the Commission has recognized in prior proceedings, it is appropriate to set goals based on RIM, but to defer to the municipal utilities' governing bodies to determine the level of investment in any non-RIM based measures. (Vento, Wucker, Para)

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JEA PROPOSED STIPULATION ON ISSUES  
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**ISSUE 7:**                    **Do the Company's proposed goals appropriately reflect consideration of free riders?**

**PROPOSED STIPULATION:**    Yes. The screening criteria based on simple payback to the customer (2 years or less) were designed to remove measures from the achievable potential forecasts that exhibit the key characteristic most associated with high levels of free-ridership in utility rebate programs, i.e. measures with naturally high levels of cost-effectiveness to the customer. Using the payback proxy method is one way to reduce the likelihood that JEA will provide incentives to customers who may have installed conservation measures even without the incentives. The sensitivity of total achievable potential to this particular screening criterion was tested using alternative simple payback screening values (1 year and 3 years). In addition to this screening step, the naturally occurring analysis performed in estimating achievable potential represents an estimate of the amount of "free riders" that are reasonably expected to participate in the particular program offerings simulated. In this sense, the payback-based screening criteria were implemented to develop portfolios with necessarily low free-ridership levels, and within the achievable potential forecasts for those portfolios, the forecasting methodology produces explicit estimates of the expected level of free-ridership within those programs. Therefore, pursuant to Rule 25-17.0021(3), F.A.C., JEA's screening process results in goals that appropriately reflect consideration of free riders. (Vento, Wucker, Para)

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**ISSUE 8:** What residential summer and winter megawatt (MW) and annual Gigawatt-hour (GWh) goals should be established for the period 2015-2024?

**PROPOSED STIPULATION:** The Commission should continue to establish goals for JEA that recognize the role of the municipal utility’s governing body to determine the appropriate level of investment in conservation programs and associated rate impacts. Although JEA’s governing body is in the process of re-evaluating JEA’s conservation programs, JEA has committed to continue to offer certain core programs, including neighborhood efficiency (low income), residential/commercial energy audits, solar water heating, and residential/commercial solar net metering. Based on the anticipated savings of those programs, the Commission should establish the following minimum goals for JEA’s residential programs:

JEA Residential Goals			
Year	Summer (MW)	Winter (MW)	Annual (GWh)
2015	0.94	0.96	2.5
2016	0.94	0.96	2.5
2017	0.94	0.96	2.5
2018	0.94	0.96	2.5
2019	0.94	0.96	2.5
2020	0.94	0.96	2.5
2021	0.94	0.96	2.5
2022	0.94	0.96	2.5
2023	0.94	0.96	2.5
2024	0.94	0.96	2.5
<b>Total</b>	<b>9.4</b>	<b>9.6</b>	<b>25.0</b>

JEA will annually report the savings achieved through implementation of all conservation program offerings, including non-FEECA programs. (Wucker, Vento, Para).

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**ISSUE 9:** What commercial/industrial summer and winter megawatt (MW) and annual Gigawatt hour (GWh) goals should be established for the period 2015-2024?

**PROPOSED STIPULATION:** The Commission should continue to establish goals for JEA that recognize the role of the municipal utility's governing body to determine the appropriate level of investment in conservation programs and associated rate impacts. Although JEA's governing body is in the process of re-evaluating JEA's conservation programs, JEA has committed to continue to offer certain core programs, including neighborhood efficiency (low income), residential/commercial energy audits, solar water heating, and residential/commercial solar net metering. Based on the anticipated savings of those programs, the Commission should establish the following minimum goals for JEA's commercial/industrial programs:

JEA Commercial/Industrial Goals			
Year	Summer (MW)	Winter (MW)	Annual (GWh)
2015	0.14	0.007	0.08
2016	0.14	0.007	0.08
2017	0.14	0.007	0.08
2018	0.14	0.007	0.08
2019	0.14	0.007	0.08
2020	0.14	0.007	0.08
2021	0.14	0.007	0.08
2022	0.14	0.007	0.08
2023	0.14	0.007	0.08
2024	0.14	0.007	0.08
Total	1.4	0.07	0.8

JEA will annually report the savings achieved through implementation of all conservation program offerings, including non-FEECA programs. (Wucker, Vento, Para)

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Docket Nos. 130199-EI, 130200-EI,  
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**ISSUE 10:**           **What goals, if any, should be established for increasing the development of demand-side renewable energy systems, pursuant to Section 366.82(2), F.S.?**

**PROPOSED STIPULATION:**   The cost-effectiveness analysis of demand-side renewable energy systems shows that they are not cost-effective. JEA will continue to offer net metering for customer-owned renewable energy systems. During the upcoming review of its conservation programs based upon JEA Board policy, JEA will consider the addition of new or updated programs to encourage the development of demand-side renewable energy systems. (Vento, Wucker)

**ISSUE 11:**           **Should the Company's existing Solar Pilot Programs be extended and, if so, should any modifications be made to them?**

**PROPOSED STIPULATION:**   JEA was not required under the 2009 FEECA goals to offer Solar Pilot Programs. As such, there are no existing Solar Programs to extend. JEA will evaluate and consult with customers regarding potential implementation of solar PV pilot programs. (Vento, Wucker)

**Table B-5: FPL Residential Annual Goals**

Summer Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	15.7	25.3	17.5	306.0	196.0	25.3
2016	15.9	25.6	20.0	399.0	266.0	25.6
2017	16.2	25.9	20.5	492.0	268.7	25.9
2018	16.5	26.2	21.1	587.0	326.4	26.2
2019	16.9	26.5	21.7	683.0	384.8	26.5
2020	17.4	26.9	22.3	n/a	417.5	26.9
2021	18.0	27.3	23.0	n/a	420.3	27.3
2022	18.7	27.6	23.8	n/a	425.4	27.6
2023	19.7	28.0	24.7	n/a	431.9	28.0
2024	20.8	28.5	25.6	n/a	438.5	28.5
<b>Total</b>	<b>175.8</b>	<b>267.8</b>	<b>220.2</b>	<b>2,467.0</b>	<b>3,575.6</b>	<b>267.8</b>

Winter Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	12.3	15.6	16.6	n/a	156.8	15.6
2016	12.3	15.8	18.4	n/a	212.8	15.8
2017	12.3	16.0	18.9	n/a	214.9	16.0
2018	12.3	16.2	19.4	n/a	261.1	16.2
2019	12.3	16.4	20.0	n/a	307.8	16.4
2020	12.3	16.7	20.6	n/a	333.9	16.7
2021	12.3	16.9	21.3	n/a	336.2	16.9
2022	12.3	17.2	22.1	n/a	340.2	17.2
2023	12.3	17.5	22.9	n/a	345.4	17.5
2024	12.3	17.8	23.7	n/a	350.7	17.8
<b>Total</b>	<b>122.8</b>	<b>166.0</b>	<b>203.8</b>	<b>n/a</b>	<b>2,859.9</b>	<b>166.0</b>

Annual Energy Consumption (GWh)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	1.8	21.6	6.3	516.0	452.8	21.6
2016	2.2	22.2	17.2	673.0	614.6	22.2
2017	2.7	22.8	18.9	830.0	620.8	22.8
2018	3.3	23.5	20.8	990.0	754.0	23.5
2019	4.1	24.2	22.9	1,152.0	889.0	24.2
2020	5.0	25.0	25.2	n/a	964.4	25.0
2021	6.2	25.7	27.7	n/a	970.9	25.7
2022	7.7	26.5	30.5	n/a	982.6	26.5
2023	9.5	27.4	33.5	n/a	997.6	27.4
2024	11.7	28.3	36.7	n/a	1,012.9	28.3
<b>Total</b>	<b>54.0</b>	<b>247.2</b>	<b>239.8</b>	<b>4,161.0</b>	<b>8,259.5</b>	<b>247.2</b>

\* Sierra Club's proposed goals are for both Residential & Commercial/Industrial and for the period 2015-2019 only

**Table B-6: DEF Residential Annual Goals**

Summer Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	26.4	26.4	26.2	n/a	65.3	26.4
2016	24.0	24.0	24.4	n/a	88.4	24.0
2017	22.2	22.2	23.7	n/a	89.8	22.2
2018	20.0	20.0	23.4	n/a	109.8	20.0
2019	17.7	17.7	23.1	n/a	129.6	17.7
2020	15.5	15.5	21.1	n/a	140.9	15.5
2021	13.7	13.7	17.6	n/a	142.7	13.7
2022	12.2	12.2	14.5	n/a	144.2	12.2
2023	11.3	11.3	12.7	n/a	146.5	11.3
2024	10.7	10.7	11.5	n/a	148.8	10.7
<b>Total</b>	<b>173.7</b>	<b>173.7</b>	<b>198.1</b>	<b>n/a</b>	<b>1,206.2</b>	<b>173.7</b>

Winter Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	58.4	58.4	59.2	148.0	52.2	58.4
2016	53.1	53.1	54.3	190.0	70.7	53.1
2017	48.7	48.7	50.5	232.0	71.9	48.7
2018	43.2	43.2	46.2	277.0	87.9	43.2
2019	37.5	37.5	41.7	323.0	103.7	37.5
2020	32.2	32.2	36.3	n/a	112.7	32.2
2021	27.8	27.8	30.7	n/a	114.1	27.8
2022	24.5	24.5	26.2	n/a	115.4	24.5
2023	22.3	22.3	23.3	n/a	117.2	22.3
2024	20.9	20.9	21.5	n/a	119.0	20.9
<b>Total</b>	<b>368.6</b>	<b>368.6</b>	<b>390.0</b>	<b>1,170.0</b>	<b>964.8</b>	<b>368.6</b>

Annual Energy Consumption (GWh)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	25.5	25.5	27.0	180.0	150.9	25.5
2016	23.8	23.8	28.8	231.0	204.2	23.8
2017	20.8	20.8	31.1	283.0	207.5	20.8
2018	17.0	17.0	37.6	337.0	253.7	17.0
2019	13.0	13.0	43.9	394.0	299.4	13.0
2020	9.3	9.3	40.6	n/a	325.6	9.3
2021	6.2	6.2	28.1	n/a	329.6	6.2
2022	3.8	3.8	16.3	n/a	333.2	3.8
2023	2.2	2.2	10.0	n/a	338.4	2.2
2024	1.2	1.2	5.9	n/a	343.8	1.2
<b>Total</b>	<b>122.6</b>	<b>122.6</b>	<b>269.3</b>	<b>1,425.0</b>	<b>2,786.3</b>	<b>122.6</b>

\* Sierra Club's proposed goals are for both Residential & Commercial/Industrial and for the period 2015-2019 only

**Table B-7: TECO Residential Annual Goals**

Summer Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	1.1	1.1	1.5	42.0	29.5	1.1
2016	1.6	1.6	2.5	52.0	39.8	1.6
2017	2.2	2.2	3.5	63.0	40.4	2.2
2018	2.7	2.7	4.3	74.0	49.1	2.7
2019	3.1	3.1	4.8	86.0	58.1	3.1
2020	3.3	3.3	4.8	n/a	62.9	3.3
2021	3.3	3.3	4.3	n/a	63.7	3.3
2022	3.0	3.0	3.8	n/a	64.5	3.0
2023	2.9	2.9	3.5	n/a	65.4	2.9
2024	2.5	2.5	3.2	n/a	66.3	2.5
<b>Total</b>	<b>25.7</b>	<b>25.7</b>	<b>36.2</b>	<b>317.0</b>	<b>539.8</b>	<b>25.7</b>

Winter Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	2.6	2.6	3.4	n/a	23.6	2.6
2016	4.1	4.1	5.9	n/a	31.9	4.1
2017	5.2	5.2	8.0	n/a	32.3	5.2
2018	6.5	6.5	9.6	n/a	39.3	6.5
2019	7.6	7.6	10.3	n/a	46.4	7.6
2020	7.6	7.6	9.7	n/a	50.3	7.6
2021	8.0	8.0	7.9	n/a	51.0	8.0
2022	7.4	7.4	6.3	n/a	51.6	7.4
2023	6.8	6.8	5.3	n/a	52.3	6.8
2024	6.1	6.1	4.6	n/a	53.0	6.1
<b>Total</b>	<b>61.9</b>	<b>61.9</b>	<b>71.0</b>	<b>n/a</b>	<b>431.7</b>	<b>61.9</b>

Annual Energy Consumption (GWh)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	1.8	1.8	3.3	95.0	68.2	1.8
2016	3.5	3.5	6.3	118.0	92.0	3.5
2017	4.8	4.8	8.8	143.0	93.3	4.8
2018	6.1	6.1	10.9	168.0	113.4	6.1
2019	6.9	6.9	12.3	193.0	134.1	6.9
2020	7.4	7.4	12.5	n/a	145.3	7.4
2021	7.7	7.7	11.4	n/a	147.2	7.7
2022	6.9	6.9	10.0	n/a	149.1	6.9
2023	6.3	6.3	9.3	n/a	151.1	6.3
2024	5.5	5.5	8.6	n/a	153.2	5.5
<b>Total</b>	<b>56.9</b>	<b>56.9</b>	<b>93.4</b>	<b>717.0</b>	<b>1,246.9</b>	<b>56.9</b>

\* Sierra Club's proposed goals are for both Residential & Commercial/Industrial and for the period 2015-2019 only

**Table B-8: GULF Residential Annual Goals**

Summer Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	2.3	2.3	3.1	33.0	18.0	2.3
2016	3.2	3.2	4.3	34.0	24.2	3.2
2017	4.1	4.1	5.6	35.0	24.3	4.1
2018	5.0	5.0	6.8	35.0	29.3	5.0
2019	5.9	5.9	8.0	n/a	34.4	5.9
2020	6.7	6.7	9.1	n/a	37.5	6.7
2021	7.5	7.5	10.2	n/a	38.0	7.5
2022	8.1	8.1	11.1	n/a	38.5	8.1
2023	8.8	8.8	11.9	n/a	39.0	8.8
2024	9.3	9.3	12.7	n/a	39.4	9.3
<b>Total</b>	<b>60.9</b>	<b>60.9</b>	<b>82.8</b>	<b>137.0</b>	<b>322.6</b>	<b>60.9</b>

Winter Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	1.3	1.3	1.9	n/a	14.4	1.3
2016	1.8	1.8	2.6	n/a	19.4	1.8
2017	2.3	2.3	3.4	n/a	19.5	2.3
2018	2.9	2.9	4.2	n/a	23.4	2.9
2019	3.4	3.4	4.9	n/a	27.5	3.4
2020	3.8	3.8	5.6	n/a	30.0	3.8
2021	4.3	4.3	6.2	n/a	30.4	4.3
2022	4.6	4.6	6.8	n/a	30.8	4.6
2023	5.0	5.0	7.3	n/a	31.2	5.0
2024	5.3	5.3	7.8	n/a	31.5	5.3
<b>Total</b>	<b>34.7</b>	<b>34.7</b>	<b>50.7</b>	<b>n/a</b>	<b>258.0</b>	<b>34.7</b>

Annual Energy Consumption (GWh)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	2.3	2.3	6.0	103.0	41.5	2.3
2016	3.2	3.2	8.2	106.0	56.0	3.2
2017	4.2	4.2	10.6	109.0	56.2	4.2
2018	5.1	5.1	13.1	112.0	67.7	5.1
2019	6.0	6.0	15.4	n/a	79.5	6.0
2020	6.8	6.8	17.5	n/a	86.6	6.8
2021	7.6	7.6	19.5	n/a	87.7	7.6
2022	8.3	8.3	21.2	n/a	88.9	8.3
2023	8.9	8.9	22.9	n/a	90.0	8.9
2024	9.5	9.5	24.4	n/a	91.1	9.5
<b>Total</b>	<b>61.9</b>	<b>61.9</b>	<b>158.8</b>	<b>430.0</b>	<b>745.2</b>	<b>61.9</b>

\* Sierra Club's proposed goals are for both Residential & Commercial/Industrial and for the period 2015-2018 only

**Table 9: FPL Commercial/Industrial Annual Goals**

Summer Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	10.5	22.8	29.9	306.0	142.5	22.8
2016	13.8	24.0	32.2	399.0	194.1	24.0
2017	15.0	24.9	33.7	492.0	196.3	24.9
2018	16.0	25.3	34.5	587.0	238.5	25.3
2019	17.5	25.8	35.4	683.0	280.9	25.8
2020	17.5	26.2	36.3	n/a	304.4	26.2
2021	17.6	26.6	37.2	n/a	305.8	26.6
2022	17.6	27.1	38.1	n/a	308.8	27.1
2023	17.7	27.5	39.0	n/a	312.8	27.5
2024	17.7	28.0	39.9	n/a	316.8	28.0
<b>Total</b>	<b>160.9</b>	<b>258.3</b>	<b>356.1</b>	<b>2,467.0</b>	<b>2,601.0</b>	<b>258.3</b>

Winter Peak Demand (MW)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	4.1	13.6	21.4	n/a	68.2	13.6
2016	5.9	14.3	23.1	n/a	92.9	14.3
2017	6.4	14.9	24.3	n/a	94.0	14.9
2018	6.7	15.3	25.2	n/a	114.2	15.3
2019	7.1	15.7	26.1	n/a	134.5	15.7
2020	7.1	16.1	27.0	n/a	145.8	16.1
2021	7.2	16.5	27.9	n/a	146.5	16.5
2022	7.2	16.9	28.9	n/a	147.9	16.9
2023	7.2	17.3	29.9	n/a	149.8	17.3
2024	7.2	17.7	30.8	n/a	151.7	17.7
<b>Total</b>	<b>66.2</b>	<b>158.2</b>	<b>264.6</b>	<b>n/a</b>	<b>1,245.6</b>	<b>158.2</b>

Annual Energy Consumption (GWh)						
Year	Utility Proposed	RIM Achievable	TRC Achievable	Sierra Club*	SACE	Commission Approved
2015	0.6	19.6	57.7	516.0	414.3	19.6
2016	0.6	23.4	70.0	673.0	564.5	23.4
2017	0.5	24.7	74.5	830.0	571.0	24.7
2018	0.4	26.0	79.1	990.0	693.8	26.0
2019	0.1	27.3	83.7	1,152.0	817.1	27.3
2020	0.3	28.7	88.5	n/a	885.2	28.7
2021	0.5	30.1	93.2	n/a	889.5	30.1
2022	0.7	31.6	98.1	n/a	898.3	31.6
2023	0.8	33.1	103.0	n/a	909.9	33.1
2024	0.8	34.7	108.0	n/a	921.6	34.7
<b>Total</b>	<b>5.2</b>	<b>279.1</b>	<b>855.8</b>	<b>4,161.0</b>	<b>7,565.2</b>	<b>279.1</b>

\* Sierra Club's proposed goals are for both Residential & Commercial/Industrial and for the period 2015-2019 only