

BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION

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In the Matter of:

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(FLORIDA POWER & LIGHT  
COMPANY).  
\_\_\_\_\_ /

DOCKET NO. 20190015-EG

FILED 8/19/2019  
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COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(GULF POWER COMPANY).  
\_\_\_\_\_ /

DOCKET NO. 20190016-EG

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(FLORIDA PUBLIC UTILITIES  
COMPANY).  
\_\_\_\_\_ /

DOCKET NO. 20190017-EG

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(DUKE ENERGY FLORIDA, LLC).  
\_\_\_\_\_ /

DOCKET NO. 20190018-EG

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(ORLANDO UTILITIES  
COMMISSION).  
\_\_\_\_\_ /

DOCKET NO. 20190019-EG

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(JEA).  
\_\_\_\_\_ /

DOCKET NO. 20190020-EG

COMMISSION REVIEW OF  
NUMERIC CONSERVATION GOALS  
(TAMPA ELECTRIC COMPANY).  
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DOCKET NO. 20190021-EG

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VOLUME 1  
PAGES 1 through 266

PROCEEDINGS: HEARING  
COMMISSIONERS  
PARTICIPATING: CHAIRMAN ART GRAHAM  
COMMISSIONER JULIE I. BROWN  
COMMISSIONER DONALD J. POLMANN  
COMMISSIONER GARY F. CLARK  
COMMISSIONER ANDREW GILES FAY

DATE: Monday, August 12, 2019

TIME: Commenced: 1:30 p.m.  
Concluded: 4:35 p.m.

PLACE: Betty Easley Conference Center  
Room 148  
4075 Esplanade Way  
Tallahassee, Florida

REPORTED BY: DEBRA R. KRICK  
Court Reporter

PREMIER REPORTING  
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21 Duke Energy Florida, LLC. [20190018]

22 ROBERT SCHEFFEL WRIGHT and JOHN T. LAVIA, III,  
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25 Orlando Utilities Commission. [20190019]

1 APPEARANCES (CONTINUED):

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3 Hopping Green & Sams, P.O. Box 6526, Tallahassee,  
4 Florida 32314, appearing on behalf of Jacksonville  
5 Electric Authority. [20190020]

6 JAMES D. BEASLEY, J. JEFFRY WAHLEN and MALCOM  
7 M. MEANS, ESQUIRES, Ausley & McMullen, Post Office Box  
8 391, Tallahassee, Florida 32302, appearing on behalf of  
9 Tampa Electric Company. [20190021]

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12 ESQUIRES, Office of Public Counsel, c/o the Florida  
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19 on behalf of the Florida Department of Agriculture and  
20 Consumer Services.

21 BRADLEY MARSHALL, BONNIE MALLOY and JORDAN  
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23 Boulevard, Tallahassee, Florida 32301; and GEORGE  
24 CAVROS, ESQUIRE, 120 East Oakland Park Boulevard, Suite  
25 105, Fort Lauderdale, Florida 33334, appearing on behalf

1 APPEARANCES (CONTINUED):

2 of Southern Alliance for Clean Energy and Florida League  
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4 JON C. MOYLE, JR., ESQUIRE and KAREN A.  
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12 Phosphate - White Springs.

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16 MARGO DUVAL and ASHLEY WEISENFELD [20190015,  
17 20190019, 20190020]; MARGO DUVAL and RACHAEL DZIECHCIARZ  
18 [20190016, 20190021]; MARGO DUVAL, CHARLES MURPHY and  
19 ANDREW KING, ESQUIRES, [20190017, 20190018], FPSC  
20 General Counsel's Office, 2540 Shumard Oak Boulevard,  
21 Tallahassee, Florida 32399-0850, appearing on behalf of  
22 the Florida Public Service Commission Staff.

23

24

25

1 APPEARANCES (CONTINUED):

2 KEITH HETRICK GENERAL COUNSEL; MARY ANNE  
3 HELTON, DEPUTY GENERAL COUNSEL, Florida Public Service  
4 Commission, 2540 Shumard Oak Boulevard, Tallahassee,  
5 Florida 32399-0850, adviser to the Florida Public  
6 Service Commission.

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1 P R O C E E D I N G S

2 CHAIRMAN GRAHAM: Good afternoon, everyone.

3 (Good afternoon from the audience.)

4 CHAIRMAN GRAHAM: Let the record show it is  
5 Monday, August 12th, and this is a Commission  
6 review for numeric conservation goals, Docket No.  
7 20190015-EG, 20190016-EG, 20190017-EG, 18-EG,  
8 19-EG, 20-EG and 21-EG. Let's call this meeting to  
9 order.

10 Staff, if I can get you to read the notice,  
11 please.

12 MS. DUVAL: By notice issued July 12th, 2019,  
13 this time and place was set for hearing in Docket  
14 Nos. 20190015-EG, 20190016-EG, 20190017-EG,  
15 20190018-EG, 20190019-EG, 20190020-EG and  
16 20190021-EG.

17 The purpose of the hearing is set out in the  
18 notice.

19 THE COURT: Okay. Time to count up our  
20 attorneys. Let's take appearances.

21 MR. COX: Good afternoon, Chairman Graham,  
22 Commissioners. William Cox appearing on behalf of  
23 Florida Power & Light in Docket No. 20190015.

24 I would also like to enter an appearance for  
25 Christopher Wright with FPL and Charlie Guyton with

1 the Gunster Law Firm also on behalf of FPL.

2 I also would like to note that Susan Clark  
3 with the Radey Law Firm will be appearing on behalf  
4 of all of the utilities in all the dockets that are  
5 the subject of today's hearing, and that would  
6 include FPL's docket.

7 Thank you.

8 MR. BERNIER: Good afternoon, Commissioners,  
9 Matt Bernier on behalf of Duke Energy Florida in  
10 Docket 20190018-EG. I would also enter an  
11 appearance for Dianne Triplett.

12 MR. GRIFFIN: Afternoon, Commissioners.  
13 Steven Griffin with the Beggs & Lane law firm on  
14 behalf of Gulf Power Company in Docket 20190016.  
15 And I would also like to enter an appearance for  
16 Russell A. Badders of Gulf Power Company.

17 Thank you.

18 MR. BEASLEY: Good afternoon, Commissioners.  
19 I am Jim Beasley with the law firm of Ausley  
20 McMullen in Tallahassee on behalf of Tampa Electric  
21 Company. I would also like to enter an appearance  
22 for Jeff Whalen and Malcolm Means, both of the same  
23 firm for Tampa Electric.

24 MR. S. WRIGHT: Good afternoon, Commissioners.  
25 Robert Schefel Wright of the Gardner Law Firm on

1           behalf of the Orlando Utilities Commission. I  
2           would also like to enter an appearance for my  
3           partner, John T. Lavia, III, sitting behind me, on  
4           behalf of OUC.

5           Thank you.

6           MR. PERKO: Good afternoon, Commissioners. My  
7           name is Gary Perko of the Hopping, Green & Sams law  
8           firm on behalf of JEA. And I would also like to  
9           enter an appearance for my law partner Brooke Lewis  
10          of the same law firm.

11          MR. MARSHALL: Good afternoon, Commissioners.  
12          My name is Bradley Marshall. I am also entering an  
13          appearance for Jordan Luebkekmann, Bonnie Malloy and  
14          George Cavros on behalf of the Southern Alliance  
15          for Clean Energy in all of the dockets except for  
16          the Florida Public Utilities Company docket, and  
17          also an appearance on behalf of myself, Jordan  
18          Leubkekmann and Bonnie Malloy on behalf of the  
19          League of United Latin American Citizens in the  
20          20190015 docket, the 20190018 docket and the  
21          20190021 docket.

22          Thank you.

23          MS. CORBARI: Good afternoon, Commissioners.  
24          Kelley Corbari for the Florida Department of  
25          Agriculture & Consumer Services. I would like to

1 make an appearance at this time for Steven Hall,  
2 Joan Matthews and Allan Charles.

3 MR. MOYLE: Good afternoon. Jon Moyle on  
4 behalf of the Florida Industrial Power Users Group.  
5 I would like to enter an appearance for Karen  
6 Putnal as well with our firm. And we are appearing  
7 in all of the dockets involving the investor-owned  
8 utilities except Florida Public Utility.

9 And this seat may get used quite a bit. This  
10 is a popular docket with a lot of people here, and  
11 I am going to be sharing it with counsel for PCS  
12 Phosphate as the need arises. So maybe let her  
13 make an appearance as well.

14 MS. WYNN: Good afternoon, Commissioners. I  
15 am Laura Wynn on behalf of White Springs  
16 Agricultural Chemicals, PCS Phosphate, in the 18  
17 docket. I would also like to enter an appearance  
18 for James Brew, my partner.

19 Thank you.

20 MR. DAVID: Yes, Commissioners. My name is  
21 Thomas A. (Tad) David with the Office of Public  
22 Counsel on behalf of the citizens of the State of  
23 Florida. I would also like to enter an appearance  
24 for J.R. Kelly, the Public Counsel, and also for  
25 Patty Christensen and Mireille Fall-Fry with the

1 Office of Public Counsel in all of the dockets.

2 Thank you.

3 MS. KEATING: And good afternoon  
4 Commissioners. Beth Keating with the Gunster Law  
5 Firm here today on behalf of Florida Public  
6 Utilities Company in docket 20190017.

7 MS. DUVAL: Margo DuVal on behalf of staff in  
8 all dockets. Rachael Dziechciarz in the 16 and 21  
9 dockets. Charles Murphy and Andrew King in the 17  
10 and 18 dockets, and Ashley Weisenfeld in the 15, 19  
11 and 20 dockets.

12 MS. HELTON: And Mary Anne Helton. I am here  
13 as your advisor for all the dockets, along with  
14 your General Counsel, Keith Hetrick.

15 THE COURT: All right. Welcome. Let's go  
16 preliminary matters.

17 Staff, do we have any preliminary matters?

18 MS. DUVAL: Yes. Staff notes that Wal-Mart,  
19 Inc., has been excused from this hearing as to all  
20 dockets, and also notes that FPUC witness Robert  
21 Camfield has been excused, and the parties to  
22 FPUC's docket have stipulated to the entry of his  
23 testimony and exhibits into the record.

24 THE COURT: Okay, speaking of exhibits, what  
25 exhibits do we have?

1 MS. DUVAL: Staff has compiled a comprehensive  
2 exhibit list which includes the prefiled exhibits  
3 attached to the witnesses' testimony in this case.  
4 The list has been stipulated and provided to the  
5 parties, the commissioners and the court reporter.  
6 This list is marked as the first hearing exhibit,  
7 and the other exhibits should be marked as set  
8 forth in the chart.

9 (Whereupon, Exhibit No. 1 was marked for  
10 identification.)

11 (Whereupon, Exhibit Nos. 2-264 were marked for  
12 identification.)

13 CHAIRMAN GRAHAM: So are we going to move the  
14 comprehensive exhibit list into the record?

15 MS. DUVAL: Yes, sir. At this point, staff  
16 requests that the list marked as Exhibit No. 1 be  
17 entered into the record.

18 CHAIRMAN GRAHAM: Is there any objections to  
19 entering Exhibit No. 1 as the comprehensive exhibit  
20 list?

21 Seeing none, we will enter that into the  
22 record.

23 (Whereupon, Exhibit No. 1 was received into  
24 evidence.)

25 CHAIRMAN GRAHAM: All right. Staff, what else

1 have we got?

2 MS. DUVAL: At this time, staff requests that  
3 Exhibit 100 through 264 be moved into the record as  
4 set forth in the comprehensive exhibit list.

5 CHAIRMAN GRAHAM: Okay. Exhibits 100 through  
6 264, any objections to moving all those into the  
7 record? Everybody seems to be nodding their head  
8 yes, so we will move Exhibits 100 through 264 into  
9 the record.

10 (Whereupon, Exhibit Nos. 100-264 were received  
11 into evidence.)

12 CHAIRMAN GRAHAM: Okay. Opening statements.  
13 My favorite part. I guess we will start here on  
14 the end and we will walk -- everybody has got four  
15 minutes for the opening statements, and I believe  
16 SACE has got seven minutes, is that correct?

17 MR. COX: Chairman Graham, I understood it was  
18 five minutes per side.

19 CHAIRMAN GRAHAM: Yeah.

20 MR. COX: I think I heard four.

21 THE COURT: I have five minutes per party.

22 MR. COX: Yes, thank you.

23 CHAIRMAN GRAHAM: Okay.

24 MR. COX: That's our understanding.

25 CHAIRMAN GRAHAM: Did I say per side?

1 MR. COX: I thought you said four per side.

2 CHAIRMAN GRAHAM: Oh, that was wishful  
3 thinking.

4 MR. COX: I will try to get there if I can.

5 CHAIRMAN GRAHAM: All right. The floor is  
6 yours.

7 MR. COX: Thank you. Good afternoon, Chairman  
8 Graham and Commissioners.

9 Florida Power & Light Company is requesting  
10 approval of its proposed numeric DSM goals for the  
11 2020 to '29 time period. As required by FEECA and  
12 the Commission's rules, these proposed DSM are  
13 cost-effective and are based on FPL's most recent  
14 planning process.

15 FPL's proposed goals are substantial in that  
16 they are projected to result in significant demand  
17 savings for our customers. They will defer a  
18 planned 1,886 megawatt natural gas fuel power plant  
19 from 2030 to 2031, and they also passed the Rate  
20 Impact Measure test, or RIM test, meaning that they  
21 are cost-effective as to nonparticipating  
22 customers, which is the standard long used by this  
23 goes commission.

24 Now, as it has done in past DSM goal  
25 proceedings, FPL followed a rigorous six-step

1           analytical process to develop its proposed goals,  
2           which included assessing the technical potential,  
3           economic potential and achievable potential. This  
4           process has been relied upon the Commission in  
5           every prior DSM goal proceeding and should be  
6           relied upon again in this case.

7                       Now, these analyses show that there is a  
8           significant decline in FPL's system avoided costs.  
9           The reason being our system is becoming more  
10          efficient, and that's a good thing. It's a big  
11          reason why we are able to keep our bills low for  
12          our customers. Simply stated, because our bills  
13          are lower, our costs are lower. DSM is not as  
14          cost-effective as it has been historically, and  
15          thus lower DSM goals are appropriate in this case.

16                      It's just the arithmetic, but Commissioners,  
17          it's arithmetic that we believe works in favor of  
18          our customers, even if it means that the nominal  
19          amount of cost-effective DSM is lower. But just  
20          because the DSM is lower, it doesn't mean that the  
21          conservation in our system is, in fact, lower. To  
22          the contrary. The amount of demand and energy  
23          savings customers experience through more stringent  
24          codes and standards has increased markedly. And  
25          even with the lower goals, our overall demand and

1 energy savings for FPL's customers over the goal  
2 setting period is projected to be greater than was  
3 projected in the last goals proceeding. So at the  
4 end of the day, conservation is actually  
5 increasings. It's increasing in ways other than  
6 customer funded DSM.

7 Now, I recognize that a number of parties have  
8 intervened in this case, but SACE is the only party  
9 that actually filed testimony in opposition to  
10 FPL's proposed goals. In contrast to FPL's  
11 proposed resource plan based cost-effective DSM  
12 goals, SACE essentially takes an always set DSM  
13 goals higher approach, which we think completely  
14 ignores prior Commission guidance and rules for  
15 goal setting.

16 Rather than performing economic evaluations  
17 with updated Florida specific information that  
18 meets the statutory and regulatory requirements,  
19 SACE has filed and recommended a DSM savings goal  
20 of one-and-a-half percent of retail energy sales as  
21 well as supplemental low income specific goals.

22 SACE's arbitrary recommended one-and-a-half  
23 percent of sales goal is even more extreme than the  
24 one-percent of sales goal that was proposed to this  
25 commission in the last DSM goals proceeding and

1 rejected by the Commission. It does not include  
2 the required summer and winter megawatt savings.  
3 It's based upon a single year of experience of two  
4 utilities in other states with different regulatory  
5 requirements, and even at that, it's overstated as  
6 much as 60 percent.

7 Its projected rate impact, Commissioners, is  
8 huge. To equalize the impact, the rate impact of  
9 FPL's proposed goals compared to SACE's proposed  
10 one-and-a-half percent goal, it would take a  
11 \$28 billion payment in 2029.

12 Similarly, SACE's low income goal proposal is  
13 unsupported by meaningful data beyond the scope of  
14 this proceeding, and comes again with a very large  
15 price tag with no meaningful consideration of  
16 cost-effectiveness whatsoever. It even fails the  
17 Total Resource Cost test, or TRC test, which is  
18 SACE's preferred cost-effectiveness test according  
19 to their testimony, showing the benefits represent  
20 a mere four percent of the program's total costs.  
21 SACE's low income proposal would cost approximately  
22 \$4.1 billion over and above FPL's proposed goals.

23 Now, in contrast, FPL's proposed for its  
24 ultimate DSM plan to double its support its low  
25 income program. The proposal we put forward we

1 believe strikes an appropriate balance between  
2 assisting low income customers while also  
3 minimizing upward pressure on electric rates.

4 For these reasons, we would ask that you  
5 approve FPL's proposed DSM goals, Commissioners.  
6 These goals will result in the lowest electric  
7 rates for our customers, while minimizing  
8 cross-subsidization. The proposed goals will  
9 benefit all of FPL's customers, both the DSM  
10 program participants and the nonparticipants alike.

11 Thank you for this opportunity to present  
12 FPL's opening statement.

13 THE COURT: Thank you, FPL.

14 Duke.

15 MR. BERNIER: Thank you, Mr. Chairman.

16 Duke Energy would urge the Commission to  
17 approve the cost-effective goals as set out in the  
18 direct testimony of Ms. Cross and supported by the  
19 analysis provided by Mr. Herndon. And beyond that,  
20 we will waive the remainder of our opening.

21 Thank you.

22 THE COURT: Fantastic opening.

23 Gulf.

24 MR. GRIFFIN: Mr. Chairman, thank you. Again,  
25 Steve Griffin here on behalf of Gulf Power Company.

1           And nearly all of the comments you heard thus far  
2           would apply equally to Gulf, and so I will keep it  
3           brief as well, but I do want to highlight that  
4           there are a few important takeaways that we, from  
5           our perspective, believe you ought to carry with  
6           you with you throughout course of this proceeding.

7                     And the first you will hear from Gulf Power  
8           witness John Floyd and Nexant witness Jim Herndon  
9           about the incredibly rigorous and analytical  
10          process that was used to develop Gulf Power  
11          Company's goals in this proceeding. They comply  
12          strictly with the requirements of the FEECA  
13          statute.

14                    SACE's proposals, in contrast, totally  
15          disregard that statutory framework. And that's  
16          problematic from our perspective, not only because  
17          it fails to adhere to the statutory framework, but  
18          also because ultimately those proposals will result  
19          in substantial rate increases for all of our  
20          customers, including our low and lower income  
21          customers.

22                    The second item that we would ask that you  
23          consider is, yes, the goal proposals, by and large,  
24          are lower this time around. But that doesn't mean  
25          that FEECA is not working as it was intended to

1 work.

2 You will hear testimony in the record from  
3 multiple witnesses, including Witness Floyd, that  
4 utility avoided costs have decreased over all quiet  
5 substantially since the last proceeding.

6 You will also hear record evidence that much  
7 of the DSM potential that was available for capture  
8 in the past has now already been captured, either  
9 through utility sponsored DSM, codes and standards  
10 or appliance efficiency standards that have  
11 improved over time. So that DSM is still  
12 happening, it's just not happening in the context  
13 of utility sponsored programs.

14 And the third, quite simply, is that we at  
15 Gulf Power Company appreciate and are sensitive to  
16 the unique position of our low and lower income  
17 customers. And for that reason, in the forthcoming  
18 DSM plan proposal process, we do intend to target  
19 some offerings for low and lower income customers  
20 while providing meaningful savings that avoid  
21 cross-subsidization.

22 And with that, I appreciate your consideration  
23 and your time. Thank you.

24 CHAIRMAN GRAHAM: Thank you.

25 Mr. Beasley.

1 MR. BEASLEY: Good afternoon, Commissioners.

2 Tampa Electric has submitted for your  
3 consideration and approval DSM goals which are  
4 fully consistent with FEECA and your implementing  
5 rules. We believe that the goals will be fair for  
6 everyone and will protect against  
7 cross-subsidization, which is certainly a admirable  
8 goal itself.

9 We share the same concerns expressed by the  
10 other utilities regarding the proposals put forth  
11 by SACE. We think the record will show that the  
12 goals proposed by Tampa Electric should be  
13 approved, and we urge you to do that.

14 Thank you.

15 THE COURT: Mr. Wright.

16 MR. S. WRIGHT: Thank you, Mr. Chairman. Good  
17 afternoon, Commissioners. On behalf of the Orlando  
18 Utilities Commission, our board, staff and  
19 customers, we thank you for the opportunity to  
20 address you now and to present our case.

21 I will be direct. OUC asks the Commission to  
22 set numeric goals of zero for peak demand  
23 reductions, energy reductions and demand-side  
24 renewable energy for the goal setting period 2020  
25 through 2029.

1           While this may seem bold, it is not  
2           unprecedented, and more significantly, our request  
3           is fully justified and supported by our testimony  
4           and exhibits.

5           Please don't assume or think for even a second  
6           that our request for zero numeric goals is any  
7           indication that OUC is not committed to  
8           conservation and sustainability. Quite the  
9           contrary. OUC is fully committed to meaningful  
10          energy conservation and to solar energy, both on  
11          the demand side and the supply side of our  
12          operations. Conservation and solar are key  
13          elements of OUC's strategic plans for the next five  
14          years and, indeed, for the next 20 -- next 30  
15          years.

16          OUC is also deeply committed to our customers.  
17          And for that reason, we believe the Rate Impact  
18          Measure test, the RIM test, is the most accurate  
19          and appropriate cost-effectiveness test to be used  
20          in setting goals to protect all customers.

21          If a measure passes RIM, it benefits all  
22          customers. If a measure doesn't pass RIM, it will  
23          cost nonparticipating customers more than it saves  
24          them.

25          RIM failing goals, RIM failing non-cost -- are

1 non-cost-effective, will cause cross-subsidization  
2 of participants by nonparticipants, and will hurt  
3 all nonparticipating customers.

4 Our request for zero goals is based on two key  
5 facts. First, for all practical purposes, no  
6 measures pass RIM for OUC based on Nexant's. Based  
7 case analyses and even in the sensitivity case,  
8 incorporating the costs of greenhouse gas  
9 regulation, no residential measures pass RIM, no  
10 demand-side renewable measures pass RIM, and only  
11 one commercial/industrial lighting measure does  
12 pass RIM, but its total energy savings over the  
13 10-year period are 6,000 kilowatt hours,  
14 600-kilowatt hours a year, less than one home uses  
15 in one month. Setting goals on the basis of such a  
16 measure makes no sense. It's not cost-effective  
17 for anybody.

18 The other key fact is this: When it comes to  
19 energy conservation and promoting solar energy, OUC  
20 walks the walk. Mr. Noonan's testimony and  
21 exhibits show that in 2017 and '18, our winter  
22 peak, summer peak and energy savings achievements  
23 were many times our commission approved goals.

24 OUC's solar achievements are also substantial.  
25 On the supply side, we have close to 20 megawatts

1 already on-line, with another 108 megawatts of  
2 utility scale solar in the pipeline, and a host of  
3 smaller installations.

4 On the demand side, we presently have net  
5 metering for more than 3,600 solar customers, and  
6 our solar population is growing rapidly. We  
7 provide access to low cost solar for our customers  
8 through our OUCollective program and our Solar  
9 Thermal program provides rebates for solar water  
10 heating systems.

11 As the Commission expressly found in order  
12 2004-0767 when it approved zero goals for OUC. OUC  
13 is in the best position to balance our community  
14 support and commitment to energy conservation  
15 against costs, and also in the best position to  
16 balance the needs and interest of all of our  
17 customers. In fact, OUC is committed to blending  
18 conservation and sustainable generating resources  
19 into all of OUC's planning. OUC actively seeks  
20 broad stakeholder input in all our planning efforts  
21 to assure that the needs of all the stakeholders  
22 and customers are met.

23 Mr. Noonan's testimony and exhibits clearly  
24 and convincingly demonstrate that we pursue energy  
25 conservation aggressively and effectively with peak

1 demand reductions and energy savings many times our  
2 commission goals.

3 Mr. Noonan's testimony also demonstrates our  
4 commitment to low income customers with a very  
5 generous rebate program for low income households,  
6 with extensive outreach and education programs, and  
7 with several programs that are not even part of our  
8 DSM plan.

9 In closing, Commissioners, in 2004, the Public  
10 Service Commission found that no measures passed  
11 RIM for OUC, and found that OUC is in the best  
12 position to determine our customers' needs, and to  
13 determine what programs and measures to continue.  
14 The Commission, accordingly, set goals of zero for  
15 OUC. We respectfully ask that you do so again.

16 The facts are the same. No measures pass RIM.  
17 And we have compellingly demonstrated our  
18 conservation and solar by our documented  
19 achievements. Please let OUC continue walking the  
20 walk without the constraints of mandatory goals  
21 that are not cost-effective to our customers.

22 Thank you very much.

23 CHAIRMAN GRAHAM: Thank you, Mr. Wright.

24 JEA.

25 MR. PERKO: Thank you, Mr. Chairman. And good

1           afternoon, Mr. Chairman and Commissioners.

2           My colleagues from the other FEECA utilities  
3           have already addressed all the points that I  
4           intended to cover, so I won't try your patience by  
5           repeating them all. I would, however, like to put  
6           a finer point on the appropriateness of basing DSM  
7           goals on the RIM test, particularly for municipal  
8           utilities like JEA.

9           Since the inception of the FEECA goal setting  
10          process, the Commission has consistently relied on  
11          the RIM test and the Participant test in setting  
12          goals for locally governed not-for-profit municipal  
13          utilities like JEA, even when it meant establishing  
14          goals at zero.

15          That is based on the Commission's recognition  
16          that JEA's local governing board is in the best  
17          position to determine its customers' needs and, by  
18          extension, the extent to which JEA should offer  
19          non-RIM based DSM programs.

20          Now, this is especially true for low income  
21          programs, which seems to be a particular concern to  
22          some of the intervenors. As you will hear from  
23          JEA's witness Donald Wucker, JEA builds on special  
24          relationship it has with other local agencies to  
25          specifically target low income communities with the

1 most need and the most potential for energy  
2 savings.

3 Since 2010, JEA's Neighborhood Energy  
4 Efficiency Program has yielded almost 11,000  
5 megawatt hours of annual energy savings, with  
6 coincident peak impacts exceeding four megawatts.  
7 And JEA's Low Income Installation Program has been  
8 implemented in over 1,600 homes, reducing those  
9 customers' monthly bills by an average of over  
10 11 percent.

11 Stated simply, the Commission's established  
12 practice of deferring to JEA's board for  
13 determining the appropriate level of investment in  
14 non-RIM based DSM measures works, and we  
15 respectfully urge you to maintain that policy.

16 Thank you.

17 THE COURT: Thank you.

18 SACE, I will come back to you last.

19 MS. CORBARI: Good afternoon, Commissioners.

20 FDACS, in its Office of Energy, is charged  
21 with promoting energy conservation in all energy  
22 use sectors throughout the state. As part of its  
23 responsibility to promote energy efficiency and  
24 conservation, FDACS is specifically required to be  
25 a party in these conservation goal proceedings.

1           One of the areas of FEECA is encouraging  
2           demand-side renewable energy systems, and  
3           conserving expensive resources such as petroleum  
4           fuels.

5           Conservation and renewable energy play an  
6           important role in Florida's energy future. Part of  
7           the Commission's responsibility under FEECA is  
8           encouraging cost-effective conservation that defers  
9           the need for new electrical generating capacity and  
10          reduces the use of fuel.

11          In the last -- since the last FEECA  
12          proceeding, there have been five power plants cited  
13          in Florida; four in the last 15 months. Three need  
14          determinations by the Commission in the last 15  
15          months. Utility demand-side management programs  
16          play a role in reducing the energy usage and  
17          shifting peak demand.

18          In establishing -- in setting goals to meet  
19          these mandates, the Commission should balance the  
20          importance of pursuing energy efficiency and  
21          conservation programs against the costs of the  
22          programs and their impact on all ratepayers. The  
23          Commission should continue to encourage all the  
24          FEECA utilities to maintain and develop energy  
25          efficiency and conservation programs, particularly

1 targeted to low income customers, and continue to  
2 education and assist these customers, which are the  
3 least able to afford energy efficiency  
4 improvements.

5 Thank you.

6 CHAIRMAN GRAHAM: Mr. Moyle.

7 MR. MOYLE: Thank you, Mr. Chairman.

8 On behalf of the Florida Industrial Power  
9 Users Group, I would like to make a few opening  
10 comments, and start by indicating that, as you have  
11 been told, it's a balancing act that is before you  
12 with respect to weighing energy efficiency measures  
13 compared to cost.

14 FIPUG, over the years participating in this  
15 docket, has suggested that cross-subsidies are  
16 something that should be avoided where they can,  
17 and that efficient demand-side management measures  
18 should be pursued.

19 We have supported the RIM test. And I think  
20 you will hear some testimony about certain measures  
21 that, over the years have, worked well and continue  
22 to be -- I would characterize it as preferred, or  
23 top of the class with respect to getting a good  
24 return on the investment. And that's, you know,  
25 demand-side management programs that can be

1           targeted to hit the peak.

2           I mean, as we have our hot summer days, and  
3           it's getting, you know, up into the 90s and the  
4           100s, resources that you can call upon and say, we  
5           need you, if you can now, to not use electricity,  
6           curtail or interrupt. Those are demand-side  
7           management programs that have worked well. I think  
8           you have recognized it, and I think the industry  
9           recognizes it. And they are not really -- not  
10          really, you know, in dispute or at issue, but I  
11          think it's an opportunity to highlight programs  
12          that are working well.

13          You will hear a little bit of discussion, over  
14          the years we've had discussions about what's the  
15          right payback period for someone to receive an  
16          incentive?

17          Two years is what has been used over a period  
18          of time. I think it's a fairly debatable question.  
19          Some would say it should be shorter. I think  
20          others would say it should be longer. I think in  
21          the business world today -- we will ask possibly  
22          some questions with respect to payback period, but  
23          I think a lot of businesses are willing to make  
24          investments with a payback period that exceeds two  
25          years. So that has an impact on your judgment, the

1           payback period.

2           I think also -- there is nothing to say you  
3           can't come in, if we say three years is the  
4           appropriate period, come in and say, well, we may  
5           not think three is the number, but two-and-a-half  
6           could be the number. So that may be something that  
7           you hear some testimony and some questions about.

8           At the end of the day, it's an important  
9           matter that is before you. I don't think you will  
10          hear a dispute that, given some government actions  
11          with respect to building codes and efficiency on  
12          appliances and other matters, energy efficiency is  
13          working.

14          I think the utilities may say that they have  
15          grown over other periods of time in greater rates,  
16          and I think that is in part because of energy  
17          efficiency measures. So we look forward spending  
18          the next couple of days with you talking about  
19          these and other matters.

20                 Thank you.

21           CHAIRMAN GRAHAM: Thank you, sir.

22           Ms. Keating.

23           MS. KEATING: Thank you, Mr.

24           Chairman. Good afternoon, Commissioners. The  
25           evidence in this case will demonstrate that FPUC's

1 request for goals of zero is based upon a fair and  
2 reasoned analysis of reliable data consistent with  
3 the long established process that balances all  
4 stakeholder interest fairly and reasonably. But  
5 that's not the end of the story.

6 As explained by FPUC's witness Scott Ranck,  
7 the companies engaged in thoughtful consideration  
8 of its unique posture in these proceedings as a  
9 small non-generating utility with a significant  
10 customer base that would likely qualify as being at  
11 or below the poverty level. That unique posture  
12 has guided its additional request to the Commission  
13 that FPUC be allowed to submit a DSM plan for  
14 Commission approval even if goals of zero are set  
15 for the company.

16 FPUC's current programs provide additional  
17 benefits to FPUC's most vulnerable customers in  
18 addition to those contemplated by FEECA, and more  
19 cost-effective as of the last update in 2015.

20 If FPUC is allowed to update its programs and  
21 analysis under the appropriate cost-effective test,  
22 FPUC believes some of its current programs may  
23 remain at least marginally cost-effective, in which  
24 case FPUC would anticipate including any such  
25 programs in its DSM plans submitted to the

1 Commission for approval.

2 FPUC has a long history of providing DSM  
3 programs for its customers having provided  
4 conservation programs for its customers even before  
5 it became subject to FEECA in 1992. The current  
6 programs are familiar to the company's customers  
7 and they are reasonably effective as reducing  
8 energy demand on FPUC's system.

9 Perhaps more importantly, these programs have  
10 provided FPUC's customers with a valuable cost  
11 saving tool that helps them manage their energy  
12 usage and costs.

13 As such, to the extent that any of these  
14 programs are still demonstrably cost-effective,  
15 maintaining these programs will provide FPUC's  
16 customers, particularly those low that are income  
17 with an important cost saving resource and  
18 budgetary stool.

19 Likewise, to the extent that any of FPUC's  
20 updated programs remain cost-effective, maintaining  
21 these programs, with or without conservation goals,  
22 would further the primary goal of FEECA, which is  
23 the reduction in and control of the growth rates of  
24 electric consumption in weather sensitive peak  
25 demand.

1           The company therefore respectfully asks that  
2           you set numeric goals for FPUC at zero, but  
3           nonetheless, allow the company to submit a DSM plan  
4           for approval in the event that any of FPUC's DSM  
5           programs do prove to be cost-effective under the  
6           RIM analysis. This would further the intent of  
7           FEECA without increasing rates for FPUC's  
8           customers.

9           Thank you.

10           CHAIRMAN GRAHAM: Thank you, Ms. Wynn.

11           MS. WYNN: Thank you, Mr. Chairman, and good  
12           afternoon, Commissioners.

13           PCS Phosphate is a large energy intensive  
14           customer of Duke Energy. In this docket, PCS  
15           supports FEECA's energy efficiency and demand  
16           reducing goals, and PCS continues to support  
17           cost-effective measures that help defer the need  
18           for new electric generating capacity and would  
19           reduce the use of fuel for electric generation.

20           More specifically, as Duke Energy's generation  
21           fleet and fuel mix have changed in recent years and  
22           become more gas oriented, we think that FEECA's  
23           peak load reduction goals, and particularly the  
24           emphasis on controlling growth in weather sensitive  
25           peak demand, has become even more important.

1           A fundamental purpose of this goals review  
2           cycle is to ensure utilities are implementing goals  
3           based on cost-effective programs which provide  
4           system-wide benefits.

5           PCS opposes arbitrary spending targets that  
6           are divorced from accepted measures of program  
7           cost-effectiveness.

8           Finally, in this docket, PCS believes that  
9           Duke Energy's conservation goals represent a  
10          reasonable balance of encouraging demand-side  
11          management while managing the cost and rate impacts  
12          on its customers. This balance is consistent with  
13          FEECA's expressed goals.

14          Thank you.

15          THE COURT: Thank you.

16          OPC.

17          MR. DAVID: Thank you, Mr. Chairman,  
18          Commissioners.

19          The Office of Public Counsel represents the  
20          ratepayers of the investor-owned utilities subject  
21          to the numeric conservation goal setting  
22          proceeding. The Office of Public Counsel  
23          recognizes that the ratepayers that we represent  
24          have differing opinions and assign differing values  
25          to the energy efficiency goals and to the rate

1 impacts for -- and to the rate impacts for  
2 achieving those goals.

3 OPC further recognizes the challenge inherent  
4 in this proceeding. However, while OPC does not  
5 seek to micromanage the efficiency measures, OPC  
6 believes that challenging but achievable goals are  
7 possible and necessary under FEECA.

8 OPC submits that the companies have relied too  
9 heavily on the RIM test in establishing the  
10 achievable potential for the demand-side management  
11 goals for each company.

12 The Commission and the companies utilize a  
13 combination of the RIM test, Participant test and  
14 Total Resources Cost test to determine the initial  
15 efficiency measures in the demand-side process.

16 OPC believes that the Commission should  
17 continue to require that companies use a  
18 combination of the RIM, participant and Total  
19 Resource Cost test throughout the process --  
20 throughout the process of setting demand-side  
21 management goals. Doing so will ensure that the  
22 costs and rate impacts to the general body of  
23 ratepayers remain fair, just and reasonable.

24 On another issue, OPC submits that a portion  
25 of the conservation goals and programs must include

1 focused effort to ensure low income customers  
2 realize some benefits from the programs, especially  
3 since these customers are the most vulnerable to  
4 the variables -- to the variability of energy cost.

5 Whatever criteria considered in making its  
6 decisions, the Commission should ensure that the  
7 company's proposed goals adequately safeguard the  
8 interests of the general body of ratepayers,  
9 including low income customers and businesses,  
10 against undue impacts while achieving the intent of  
11 FEECA.

12 If the Commission chooses to rely upon the  
13 company's proposed goals to establish the 2020  
14 through 2029 goals, or chooses to set goals lower  
15 than the RIM achievable potential goals, OPC  
16 submits that there should be no rewards allowed for  
17 exceeding those goals. This would be like allowing  
18 intelligent pupil to earn an A for C level work  
19 simply because the pupil set a goal of doing C  
20 minus work. No one succeeds under that scenario.

21 That's why OPC encourages the Commission to  
22 set challenging but achievable goals that are based  
23 on multiple efficiency measures at every stage of  
24 the decision-making process.

25 Thank you.

1 THE COURT: Thank you, OPC.

2 And SACE.

3 MR. MARSHALL: Good afternoon. We represent  
4 the Southern Alliance for Clean Energy and the  
5 League of United Latin American Citizens, also  
6 known as LULAC.

7 Many members from LULAC are here, having  
8 traveled up from Tampa, and have Floridians who  
9 have traveled from Orlando and even Miami.  
10 Unfortunately, this commission denied them the  
11 opportunity to speak today, but I want to thank  
12 them for coming to witness this hearing and  
13 demonstrate their concern.

14 Over 1,200 people and municipalities have  
15 commented on these dockets. This hearing is the  
16 proceeding to set energy conservation goals for the  
17 next 10 years to help Floridians throughout the  
18 state save money on their electricity bills. And  
19 we are here today, and people are commenting  
20 because zero energy savings is not a goal is.

21 How people can save money on their electric  
22 bills is by reducing their energy usage. In  
23 Florida we have the energy efficiency and  
24 conservation act to mandate that the utilities of  
25 this state do just that, help people reduce their

1 energy usage.

2 Orlando Utilities Commission, JEA, Gulf Power  
3 have all actually proposed goals of zero energy  
4 savings for the next decade. And Florida Power &  
5 Light's proposed energy savings goals are so small,  
6 the equivalent of less than 10 residential homes  
7 over the next decade out of over 10 million people  
8 served, they might as well be zero.

9 If these zero goals are adopted, the majority  
10 of hard-working families and businesses in this  
11 state will no longer have access to programs to  
12 lower their electric bills.

13 And TECO and Duke, while not at zero, can and  
14 should do much better for the citizens of this  
15 state. You will be hearing about all of this and  
16 more from SACE's witnesses Jim Grevatt and Forest  
17 Bradley-Wright.

18 The Energy Efficiency Act was designed, quote,  
19 "to protect the health, prosperity and general  
20 welfare of the state and its citizens," end quote.  
21 Not the profit of the utilities.

22 Through this hearing, you will hear how we got  
23 to zero energy savings goals. Two of the principle  
24 drives, of course, are the Rate Impact Measure, RIM  
25 test, and the two-year payback screen, which all

1 the utilities have used to set their goals.

2 In the RIM test, or the profits test as we  
3 call it, energy savings, meaning people lowering  
4 their bills by reducing their energy usage and thus  
5 paying less money is considered a cost, a bad  
6 thing. The only benefits considered under the  
7 profits test are benefits to the utility, not to  
8 customers.

9 The utilities like to argue that the profits  
10 test is the one to use because it measures pressure  
11 on rates. But that's just another way of saying it  
12 measures the pressure on their profits. We submit  
13 that any test that considers Floridians' bill  
14 savings to be a cost, a bad thing, which leads to  
15 unlawful goals of zero, can not be the test to use  
16 to decide what energy efficiency measures are  
17 cost-effective to implement in this state to  
18 benefit the citizens of this state.

19 Yes, we have low rates, but due to high energy  
20 usage, we also pay some of the highest electricity  
21 bills in the nation. The utilities like to call  
22 the profits test the no losers test, but with goals  
23 of zero and with electricity rates going up, and  
24 our electricity bills already being so high, it  
25 really is the all customers lose test.

1           Instead, the cost-effectiveness test the  
2           Commission should use to set goals is the Total  
3           Resource Cost, TRC test, which looks at the cost of  
4           a measure and the benefits of a measure.

5           If the benefits of a measure to the system as  
6           a whole outweigh the cost of a measure, it is  
7           considered cost-effective and something that should  
8           be implemented. Because measures that pass TRC  
9           lead to real bill savings, and bill savings are not  
10          considered a cost under TRC, they usually fail the  
11          profits test. Under TRC, customers can make the  
12          choice to participate in efficiency programs and  
13          choose to lower their energy bills.

14          The other way we got to zero is the utility  
15          screened out every measure that would pay for  
16          itself within two years. In other words, all the  
17          most cost-effective measures that could really make  
18          a difference in peoples' lives, especially low  
19          income communities.

20          The response we get is that we need to account  
21          for people who would have implemented measures  
22          anyway. The good news is, as you will hear over  
23          the coming days, is that we already do. The  
24          technical potential analysis, the first step in the  
25          analysis in this case that leads to the economic

1 potential, that leads to the achievable potential,  
2 which leads to the goals, was based on load  
3 forecasting that also accounted for people  
4 implementing energy efficiency measures on their  
5 own. They can't count it twice. The utilities  
6 don't get to cut the most cost-effective measures  
7 for something they already accounted for.

8 All the utilities seem to be trying to assure  
9 the Commission that they will continue to look out  
10 for the most vulnerable and low income communities,  
11 but with goals of zero, there would be no way to  
12 ensure that happens.

13 There is already wide variation in how much  
14 the utilities have historically helped low income  
15 communities and hard-working families.  
16 Unfortunately, some, like Orlando, have fallen  
17 pretty far behind their peers, and now propose to  
18 go to zero.

19 To be clear, Orlando Utilities is subject to  
20 the Energy Efficiency Act and its mandates. If  
21 Orlando Utilities wants to continue to advocate  
22 against clean energy, against energy efficiency,  
23 against solar and for continuing business as usual  
24 as they've done here, they are going to have to  
25 change the law and can ask their elected

1 representatives to do so.

2 There are many other issues too. For example,  
3 while Duke and TECO use relatively reasonable  
4 administrative costs, the others did not. It does  
5 not cost Florida Power & Light \$29 in  
6 administrative costs per lightbulb as they claim.  
7 It does not cost JEA \$1,478 in administrative costs  
8 per air source heat pump to administer a rebate  
9 program.

10 We are also here because another purpose of  
11 the Energy Efficiency Act was to promote  
12 demand-side renewable energy, rooftop solar here in  
13 Florida --

14 CHAIRMAN GRAHAM: You have one minute left.

15 MR. MARSHALL: Thank you.

16 And every single one, even utilities have a  
17 public facing image of being pro solar, like  
18 Orlando, have proposed a goal of zero energy for  
19 rooftop solar over the next decade. They are not  
20 walking the walk.

21 Given the directive of the Legislature and the  
22 face of the climate crisis and our continuing  
23 dependence on fossil fuels, zero is not a goal.

24 Thank you.

25 CHAIRMAN GRAHAM: Thank you.

1           Okay. Did I miss anybody's opening statement?  
2           I think I got everybody.

3           All right. So now we will swear in the  
4           witnesses. If I can get you to stand and raise  
5           your right hand if you are going to be somebody  
6           called as a witness in these hearings.

7           (Witnesses sworn.)

8           CHAIRMAN GRAHAM: Thank you.

9           The sponsors will call up the witnesses. We  
10          have the order that has already been approved in  
11          the prehearing. Each witness will be given three  
12          minutes to summarize their testimony before they  
13          get cross-examined.

14          Since we are talking about timing, I should  
15          have told you this at the beginning. Let me give  
16          you an idea of what this week is going to look  
17          like.

18          We are going to start every morning at 9:00  
19          a.m. That's nine, zero, zero. Not 9:30. We are  
20          going to start at 9:00. We are going to break for  
21          lunch at 1:00. And the reason for that is because  
22          the lunch crowd should be gone because we would  
23          only stop for an hour, so it allows people to get  
24          out, get their lunch and get back. And we will  
25          stop every day as close to 7:00 as I can get,

1           between 6:30 and 7:00. I don't plan on going after  
2           dinner during this week.

3           On Thursday, I will speak to my Commissioners.  
4           If it looks like that we are running late, we may  
5           go late on Thursday, but Thursday will be the only  
6           day that we will go late. And we are definitely  
7           done here on Friday by noon. So if we are not  
8           done, we will be back next Monday, but the goal is  
9           to be done by Friday at noon.

10           We will stop every two, two-and-a-half hours  
11           for my court reporter so she can rest her little  
12           fingers.

13           And that being said, let's take a five-minute  
14           break now. And, Florida Power & Light, your  
15           witness, if you can get them up here during that  
16           time. Five-minute break.

17           MR. COX: Yes, chair.

18           (Brief Recess's.)

19           CHAIRMAN GRAHAM: Okay. I have a quorum.

20           Florida Power & Light, your witness is up  
21           first.

22           MR. COX: Chairman Graham, FPL calls its first  
23           witness, Thomas R. Koch.

24           CHAIRMAN GRAHAM: Mr. Koch.

25           Whereupon,

1 THOMAS R. KOCH  
2 was called as a witness, having been previously duly  
3 sworn to speak the truth, the whole truth, and nothing  
4 but the truth, was examined and testified as follows:

5 EXAMINATION

6 BY MR. COX:

7 Q Mr. Koch, have you been sworn in for this  
8 hearing?

9 A Yes, I have.

10 Q Mr. Koch, could you please state your name for  
11 the record?

12 A Thomas R. Koch.

13 Q And, Mr. Koch, who is your current employer,  
14 and what is your business address?

15 A It's Florida Power & Light, 6100 Village  
16 Boulevard, West Palm Beach, Florida, 33407.

17 Q What is your current position with Florida  
18 Power & Light?

19 A I am Senior Manager of DSM Strategy Costs and  
20 Performance.

21 Q Mr. Koch, did you cause to be filed on  
22 April 12th, 2019, 38 pages of direct testimony in this  
23 proceeding?

24 A Yes.

25 Q Do you have any changes or corrections to your

1 testimony that was prefiled?

2 A No, I don't.

3 Q If I were to ask you the same questions today  
4 as contained in your prefiled testimony, would your  
5 answers be the same?

6 A Yes.

7 MR. COX: Chairman Graham, FPL would request  
8 that Mr. Koch's April 12th, 2019 prefiled direct  
9 testimony be inserted into the record as though  
10 read.

11 CHAIRMAN GRAHAM: We will insert Mr. Koch's  
12 prefiled direct testimony into the record as though  
13 read.

14 MR. COX: Thank you.

15 (Whereupon, prefiled testimony was inserted.)  
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## I. INTRODUCTION

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**Q. Please state your name and business address.**

A. My name is Thomas R. Koch. My business address is 6100 Village Boulevard, West Palm Beach, Florida 33407.

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

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

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

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

**Q. Please describe your educational background and professional experience.**

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

I joined FPL's Finance Department in 1985, working on forecasting and regulatory projects. In 1989, I became Treasury Manager responsible for FPL's short-term cash management, investing and borrowing. In 1991, I joined Customer Service where I was responsible for program management of various tariffed offerings, product development and commercial/industrial retail market strategy. Beginning in 1998, I served in a number of positions in

1 Power Delivery: Manager, Development & Planning; Manager,  
2 Environmental Department; Manager, Underground Department; and  
3 Manager, Financial Forecasting. In these positions, I was responsible for:  
4 day-to-day field operations; regulatory proceedings; growth activities; policy  
5 and procedure development; and regulation compliance. In 2009, I rejoined  
6 Customer Service and assumed my current position in 2011.

7 **Q. Are you sponsoring any exhibits in this case?**

8 A. Yes. I am sponsoring Exhibits TRK-1 through TRK-4, which are attached to  
9 my testimony:

10 TRK-1 – Current DSM Programs and Achievements

11 TRK-2 – Current DSM Programs and Associated Measures

12 TRK-3 – 2020-2029 Achievable Potential – RIM and TRC

13 TRK-4 – 2020-2029 Proposed DSM Goals

14 **Q. What is the scope of your testimony?**

15 A. My testimony provides the following:

- 16 I. Describes FPL’s historical DSM achievements;
- 17 II. Provides an overview of the 2019 DSM Goals development process;
- 18 III. Discusses impacts of significant market forces on utility-sponsored  
19 DSM;
- 20 IV. Discusses the Achievable Potential development for which I am  
21 responsible, including the impact of significant market forces;
- 22 V. Summarizes FPL’s proposed 2020-2029 DSM Goals; and

1 VI. Proposes increased assistance for Low Income customers and a  
2 research & development pilot project.

3 **Q. Are there other FPL witnesses that are providing direct testimony in this**  
4 **docket?**

5 A. Yes. There are two other FPL witnesses filing direct testimony in this docket.  
6 They are Mr. Andrew W. Whitley and Dr. Steven R. Sim, both from FPL's  
7 Integrated Resource Planning department.

8 **Q. What subject matter is addressed in Mr. Whitley's direct testimony?**

9 A. Mr. Whitley addresses the preliminary cost-effectiveness screening of  
10 individual DSM measures that he performed as part of the Economic Potential  
11 phase of the analyses. He also discusses the economic analyses of three  
12 resource plans: a resource plan without any incremental DSM for the 2020-  
13 2029 time period (the "Supply Only" resource plan), and two resource plans  
14 with DSM, including one with FPL's proposed DSM Goals.

15 **Q. What subject matter is addressed in Dr. Sim's direct testimony?**

16 A. Dr. Sim discusses the continuing trend of decreasing DSM cost-effectiveness  
17 by describing the drivers which have significantly reduced the "benefits" side  
18 of DSM benefit-to-cost (or cost-effectiveness) analyses. His testimony  
19 addresses why it is both logical and appropriate for FPL's proposed DSM  
20 Goals to be lower than the goals set by the Commission in the last DSM Goals  
21 docket in 2014.

1 **Q. Please summarize your testimony.**

2 A. Energy efficiency is fundamentally all about customers' decisions. Beyond  
3 the government-mandated compliance levels set by the Florida Building Code  
4 and federal equipment manufacturing standards (collectively, "Codes and  
5 Standards"), it is each customer's voluntary decisions that determine how  
6 many energy efficiency options they adopt and, therefore, how much energy  
7 efficiency is collectively implemented in Florida. The amount and effect of  
8 energy efficiency residential and business customers ultimately install is  
9 driven by three decisions: first, the characteristics of the property they elect to  
10 purchase or lease; second, the equipment they elect to retain or replace; and  
11 third, how they elect to operate that equipment.

12  
13 The purpose of utility-sponsored DSM in fulfilling the intent of the Florida  
14 Energy Efficiency and Conservation Act (FEECA) is straightforward – to  
15 encourage customers to voluntarily implement cost-effective conservation  
16 measures (which reduce peak demand and/or energy usage) that they would  
17 not otherwise elect to implement on their own. Utilities' DSM programs  
18 support customers' decision-making by picking up where the Codes and  
19 Standards leave off, by promoting cost-effective efficiency beyond the  
20 government mandates. The impact of Codes and Standards has been dramatic  
21 and provides an important starting point and frame of reference for the role of  
22 utility DSM. DSM programs work to influence customers' decisions by

1 providing education on energy efficiency and, where cost-effective, financial  
2 incentives.

3

4 Because utility DSM programs are funded by the general body of customers,  
5 it is critical that DSM be implemented in a cost-effective manner to ensure  
6 fairness for all customers, both DSM participants and non-participants.  
7 Absent this, non-participating customers would be forced to cross-subsidize  
8 DSM-participating customers to their financial detriment. In addition, DSM  
9 represents one of two types of resources available to address future load needs  
10 (the other being supply-side resources), so it is important that the level of  
11 DSM be based on sound economic analysis within the utility's Integrated  
12 Resource Planning (IRP) process such that these two types of resources  
13 compete to provide the best result for all customers.

14

15 **Historical DSM Achievements** – For more than 40 years, FPL has focused  
16 on delivering DSM programs that help customers manage their energy use  
17 while maintaining the discipline to avoid promoting DSM measures that result  
18 in higher electric rates than supply-side alternatives. Consistent with FEECA  
19 and the Commission's DSM Goals Rule (Rule 25-17.0021, F.A.C.), certain  
20 critical goal-setting policies have been followed to ensure the best balance of  
21 resources was achieved. First, by relying on the Rate Impact Measure (RIM)  
22 test, rate impacts to all customers have been recognized and cross-  
23 subsidization has been eliminated or minimized. Second, incentives to “free

1 rider” participants are minimized by use of the two-year payback criterion.  
2 Finally, customers are not asked to pay for more DSM than can be used  
3 beneficially within a utility’s IRP process. Following these policies has  
4 yielded resource plans, including DSM portfolios, which have provided the  
5 most favorable long-term electric rate impact for all customers.

6

7 **Significant Market Forces** – There are two significant marketplace changes  
8 that have had dramatic impacts on FPL’s DSM Goals developed in prior  
9 dockets and will continue to play an even more significant role during future  
10 years. First, as discussed in more detail in the testimony of FPL witness Sim,  
11 all but one of the eight drivers of FPL’s system costs (*e.g.*, generation capital,  
12 system fuel cost, etc.) are significantly lower than in the prior two DSM Goals  
13 dockets. FPL witness Sim’s analysis shows that projected DSM benefits have  
14 decreased more than 33% in the five-year period since DSM Goals were last  
15 set. Lower system costs result in enormous benefits for all FPL customers and  
16 Florida as a whole by keeping electric rates low. However, these lower  
17 system costs automatically result in decreasing the value the Megawatt (MW)  
18 and Megawatt-hours (MWh) reductions that utility-sponsored DSM programs  
19 could potentially provide. Accordingly, if the costs “to be avoided” by DSM  
20 are lower, then fewer DSM measures will be cost-effective.

21

22 Second, as explained in the testimony of FPL witness Sim, there have been  
23 significant increases in mandated energy efficiency as a result of changes to

1 Codes and Standards. The effect of these Codes and Standards is positive for  
2 overall energy efficiency in Florida because it means that 100% of customers  
3 are subject to governmental requirements to install higher efficiency end-uses,  
4 rather than just those that a utility could induce through voluntary DSM  
5 programs. However, these mandated improvements also have the effect of  
6 significantly reducing the amount of incremental efficiency benefits  
7 achievable from a participating customer installing even more efficient end-  
8 use equipment. This, in turn, diminishes the number and scope of cost-  
9 effective utility DSM programs/measures. It should be recognized that these  
10 increased Codes and Standards represent normal, naturally-occurring external  
11 forces which FPL must reconcile in its forecasting and IRP process and  
12 necessarily will reduce the amount of cost-effective utility-sponsored DSM.

13

14 Although Codes and Standards reduce the economic viability of utility DSM,  
15 FPL's customers are projected to receive more significant reductions in both  
16 peak load and energy by the year 2029 than was projected in the last two  
17 DSM Goals dockets. For example, in the current projection, FPL's customers  
18 are projected to receive reductions of approximately 4,820 MW peak load and  
19 12,049,520 MWh from Codes and Standards by 2029. In the 2009 docket, the  
20 reduction projections were 2,209 MW peak load and 9,359,212 MWh.  
21 Therefore, the current savings projections are much higher at approximately  
22 118% and 29% larger, respectively. In addition, when considering all sources  
23 of MW and MWh savings, both from Codes and Standards and DSM Goals,

1 FPL customers are projected to receive more total peak demand and energy  
2 reductions by the year 2029 than the previous projections from the 2014 DSM  
3 Goals.

4  
5 **DSM Goals Development Process** – As explained in greater detail by Nexant  
6 witness Herndon and FPL witness Whitley, the FPL Goals development  
7 process involves multiple analyses in a six-step process. First, a Technical  
8 Potential (TP) analysis determines the breadth of measures to be considered  
9 and their maximum hypothetical demand and energy savings. Second, FPL’s  
10 resource needs during the DSM Goals timeframe are determined. Third, a  
11 preliminary economic screening (Economic Potential or EP) of the DSM  
12 measures is derived based on the Participant, RIM, and Total Resource Cost  
13 (TRC) preliminary screening tests, and their maximum incentive amounts are  
14 calculated. At this stage of the process, FPL also performed sensitivity  
15 analyses to assess the impact of variations in certain key assumptions: higher  
16 and lower fuel costs, shorter and longer (one and three-year) customer  
17 payback periods to evaluate free riders; and inclusion of carbon dioxide (CO<sub>2</sub>)  
18 costs. Fourth, the ten-year (2020-2029) Achievable Potential (AP) is  
19 determined based on the maximum incentive levels for all measures that  
20 passed the prior screening. In the fifth and sixth steps, various resource plans  
21 utilizing the AP based on measures that passed the RIM and Participant  
22 screening tests are developed and analyzed, respectively, to determine the  
23 optimum level of DSM Goals. I discuss the fourth step (development of the

1 AP), while Nexant witness Herndon discusses the first step and FPL witness  
2 Whitley discusses the other steps in the analytical process.

3

4 **FPL's Proposed 2020-2029 DSM Goals** – FPL's proposed cumulative DSM  
5 Goals for 2020-2029 are 352 Summer MW, 259 Winter MW and 1,023  
6 Megawatt-hours (MWh). They are the result of FPL's robust analytical  
7 process, requiring months of analyses. FPL's proposed Goals were developed  
8 in compliance with Rule 25-17.0021, F.A.C., and the Commission's  
9 traditional policies on DSM goal-setting that have provided large cumulative  
10 amounts of DSM savings over the years. FPL's proposal will establish DSM  
11 Goals at a reasonable and appropriate level given current projections of FPL  
12 system costs while continuing to maintain low electric rates for all FPL  
13 customers.

14

15 **Proposed Assistance for Low Income Customers** – Because of the  
16 aforementioned economics, utility-provided incentives for traditional energy  
17 efficiency (EE) measures are not cost-effective. However, EE measures have  
18 been one of the primary sources of assistance to low income customers. FPL  
19 is therefore proposing to not only retain, but expand its existing Low Income  
20 program. Although this program is not cost-effective, FPL believes  
21 continuing to provide assistance to this vulnerable group is appropriate and  
22 warranted to replace EE program options that will no longer be available.  
23 This proposal is consistent with the Commission 2014 Goals docket Order No.

1 PSC-14-0696-FOF-EU, wherein the Commission recognized the importance  
2 of supporting these customers.

3

4 **Proposed Electric Vehicle Research & Development Pilot Project** – With  
5 traditional EE measures no longer being viable, FPL is searching for potential  
6 next-generation DSM replacements. FPL’s 2019 Ten-Year Site Plan (TYSP)  
7 shows that electric vehicles (EV) are projected to add approximately 460  
8 Summer MW to FPL’s system peak load through 2028. Therefore, FPL  
9 proposes adding a Research & Development (R&D) pilot within the existing  
10 Conservation Research & Development (CRD) program to evaluate the  
11 technical and operational feasibility of FPL reducing system peak demand  
12 through control of residential EV chargers.

13

## 14 **II. FPL’S HISTORICAL DSM ACHIEVEMENTS**

15

16 **Q. Please provide an overview of FPL’s history and results in implementing**  
17 **DSM.**

18 A. FPL began offering DSM programs in the late 1970s prior to the Florida  
19 Legislature’s adoption of FEECA in 1980. Since then, FPL has maintained a  
20 continuous commitment to cost-effective DSM. As described in greater detail  
21 by FPL witness Whitley, FPL has made DSM an integral part of its IRP  
22 process and has consistently evaluated DSM in accordance with the  
23 Commission’s long-standing goal-setting policies. Through this process, FPL

1 has developed a wide array of cost-effective load management (LM) and EE  
2 programs for both residential and business customers, which have achieved  
3 large cumulative reductions. Through year-end 2018, FPL's highly effective  
4 DSM efforts have resulted in a cumulative Summer peak demand reduction of  
5 4,840 MW. After accounting for the 20% total reserve margin requirements,  
6 this equates to eliminating the need to construct the equivalent of  
7 approximately 15 new 400 MW generating units. Cumulative energy  
8 consumption savings are 86,108 GWh at the generator, equal to approximately  
9 75% of the consumption of all of FPL's customers for a year. At the same  
10 time, the discipline of working within the traditional Commission goal-setting  
11 policies has helped ensure that FPL's electric rates remain low. As a result,  
12 FPL's bills are the lowest in the state and 30% below the national average as  
13 of the time of this filing.

14 **Q. Please describe FPL's currently offered DSM programs and their**  
15 **achievements.**

16 A. As shown on Exhibit TRK-1, most of FPL's current programs have been  
17 offered since the 1980s or early-1990s. Cumulatively, as of year-end 2018,  
18 there have been approximately 7.6 million participants in these programs  
19 (some customers have participated in multiple programs) representing more  
20 than 4,100 Summer MW and over 80,500 GWh (about 85% and 95%  
21 respectively of FPL's cumulative total including discontinued programs).  
22 Exhibit TRK-2 provides the list of measures associated with FPL's programs.

1           **Load Management (LM)** – FPL operates one of the largest LM programs in  
2           the nation. As of year-end 2018, FPL’s Residential On Call<sup>®</sup> program,  
3           established in 1986, was the largest residential program in the United States  
4           with about 711,000 participants. Along with FPL’s over 21,000 business LM  
5           participants, FPL currently has over 1,700 MW of Summer LM demand  
6           reduction available for use by FPL’s system operators.

7  
8           **Energy Efficiency (EE)** – FPL has also offered large EE programs for  
9           decades. Almost two million customers have participated in FPL’s residential  
10          Air Conditioning program, making their home’s largest source of energy use  
11          more efficient than required by the Codes and Standards that were applicable  
12          at the time of installation. Likewise, more than 20,000 business customers  
13          have participated in FPL’s Heating, Ventilation and Air Conditioning  
14          (HVAC) program, installing efficient direct expansion (DX) and chiller units  
15          as well as Thermal Energy Storage (TES) systems. In addition, over 21,000  
16          business customers have participated in FPL’s Business Lighting program,  
17          which has experienced a significant increase in lighting participation due to  
18          customers replacing existing lights with light-emitting diodes (LED).  
19          Combined, current EE programs represent over 2,400 Summer MW and  
20          almost 100% of the total GWh shown on Exhibit TRK-1.

21  
22          **Customer Education (Surveys)** – Since 1981, FPL has emphasized energy  
23          efficiency education for customers. FPL uses residential Home Energy

1 Surveys (HES) and Business Energy Evaluations (BEE) as a foundational  
2 component of its DSM portfolio. These are used for customer education on  
3 conservation measures that make economic sense for customers, whether  
4 offered as a part of FPL's programs or not. FPL has performed almost four  
5 million HESs and almost 250,000 BEEs via online, phone and on-site delivery  
6 channels. Since 2015, more than 300 residential customers per day had a HES  
7 and more than 40 business customers per work day had FPL conduct a BEE.  
8 In addition to the utility-provided educational resources, customers also have  
9 access to many other public sources of information (such as governmental  
10 resources like ENERGY STAR<sup>®</sup>, contractors, appliance retailers, and  
11 manufacturers) to help them decide on what actions they wish to implement to  
12 use energy more efficiently.

13 **Q. Has this success resulted in low electric rates and bills for FPL's**  
14 **customers?**

15 A. Yes. Through disciplined evaluation of DSM and adherence to the  
16 Commission's long-standing DSM policies, FPL has been able to achieve this  
17 success while keeping electric rates low for all customers. This approach is a  
18 contributor to FPL's typical residential monthly bill being the lowest in  
19 Florida and 30% below the national average. Clearly, the manner in which  
20 FPL and the Commission have historically implemented DSM is working. In  
21 other words, FPL's and the Commission's focus on cost-effective DSM has  
22 been successful in striking the balance between energy conservation and  
23 maintaining low rates for all customers.

1           **III.    OVERVIEW OF 2019 DSM GOALS DEVELOPMENT PROCESS**

2

3   **Q.    Please provide an overview of the main analyses performed to develop the**  
4           **2019 DSM Goals.**

5    A.    Though there are multiple individual steps in the process, Goals development  
6           involves three primary interrelated analyses:

7                   (1) **Technical Potential (TP)** – determines the breadth of measures to be  
8                   considered and their maximum hypothetical demand and energy  
9                   savings;

10                   (2) **Economic Potential (EP)** – preliminary economic screening of the  
11                   DSM measures; and

12                   (3) **Achievable Potential (AP)** – the ten-year (2020-2029) achievable  
13                   customer participation in the measures which survived the EP.

14

15           FPL and the other six utilities subject to FEECA (FEECA Utilities) worked  
16           jointly on certain aspects of the analyses and also engaged a nationally  
17           recognized DSM consultant, Nexant, who has performed many of these types  
18           of studies to assist with portions of the work. Nexant conducted the TP  
19           analysis for FPL and the other FEECA Utilities. Nexant also performed the  
20           EP and/or AP analyses for some of the other FEECA Utilities.

21   **Q.    Please briefly describe the Technical Potential (TP) Analysis.**

22    A.    FEECA requires the Commission to “...*evaluate the full technical potential of*  
23           *all available demand-side and supply-side conservation and efficiency*

1        *measures, including demand-side renewable energy systems.” (Section*  
2        *366.82(3), F.S.)* The TP’s purpose is to identify the theoretical maximum  
3        limit to reducing Summer and Winter electric peak demand and energy. The  
4        TP assumes every identified potential end-use measure (or measures) is  
5        installed everywhere it is “technically” feasible to do so from an engineering  
6        standpoint. The TP ignores cost, customer acceptance, or any other real-world  
7        constraints (such as product availability, contractor/vendor capacity, cost-  
8        effectiveness, and customer preferences). Therefore, the TP is purely  
9        hypothetical and in no way reflects the MW and MWh savings that are  
10       achievable through real-world voluntary utility programs.

11

12       Nexant performed the TP analyses for each of the FEECA Utilities. This  
13       included coordinating the development of the DSM measure list and gathering  
14       all data necessary to perform the analysis. The analysis required extensive  
15       iterative analytical work and continuous collaboration among the FEECA  
16       Utilities to ensure that it was comprehensive. Nexant witness Herndon’s  
17       testimony provides the analysis details and results. As evidence of the  
18       comprehensiveness of the analysis, during the development process the  
19       FEECA Utilities shared their draft measure list with Southern Alliance for  
20       Clean Energy (SACE) and gathered and considered their input. Ultimately,  
21       the draft measure list was comprehensive, and SACE’s review resulted in no  
22       additions or revisions to the list.

1 **Q. Does the TP represent an adequate assessment of the full Technical**  
2 **Potential of all available demand-side and supply-side conservation and**  
3 **efficiency measures, including demand-side renewable energy systems,**  
4 **pursuant to Section 366.82(3), F.S.?**

5 A. Yes. FPL believes the result of the TP to be reasonable and represents an  
6 adequate assessment of the full Technical Potential of all measures given the  
7 comprehensive, iterative approach taken.

8 **Q. Please briefly describe the Economic Potential (EP) Analysis.**

9 A. The EP analysis is a preliminary economic screening of the DSM measures  
10 identified in the TP. As described by FPL witness Whitley, it involves  
11 conducting Participant, RIM, and TRC preliminary screening tests. The  
12 maximum cost-effective supportable incentive amount is calculated for any  
13 passing measures. During the EP analysis, FPL also performed sensitivity  
14 analyses to assess the impact of variations in certain key assumptions: higher  
15 and lower fuel costs, shorter and longer (one and three-year) customer  
16 payback periods to evaluate free riders; and inclusion of CO<sub>2</sub> costs.

17 **Q. Please briefly describe the Achievable Potential (AP) Analysis.**

18 A. The AP represents the aggregate amount of Summer MW, Winter MW and  
19 annual MWh for the residential and business sectors that could reasonably be  
20 achieved for those measures that passed the EP screening. The projected  
21 annual recruitment levels of participating customers for each measure are  
22 based on the maximum incentive levels from the EP. The AP methodology  
23 and FPL's results are further described in Section V of my testimony.

1 **Q. Please describe the Commission's long-standing goal-setting policies and**  
2 **the benefits provided to all customers.**

3 A. The Commission has long recognized that Goals for utility-sponsored DSM  
4 are not an end in themselves. The absolute level of the Goals will and should  
5 change as considerations of cost-effectiveness, technology and other  
6 economic factors change over time. By applying these policies, the  
7 Commission has approved DSM Goals and Plans that have resulted in  
8 substantial levels of DSM being implemented, while at the same time  
9 avoiding the large rate impacts that would come from setting Goals on another  
10 basis such as the TRC test or some arbitrary metric (such as percentage of a  
11 utility's total electric sales). I will discuss three very important Commission  
12 policies.

13  
14 First, consider the use of the RIM test (coupled with the Participant test). This  
15 ensures that rate impacts to all customers and cross-subsidization are  
16 eliminated or minimized. The RIM test accounts both for the cost of  
17 incentives paid to program participants and the upward pressure on rates from,  
18 unrecovered revenue requirements associated with sales reduced by DSM.  
19 Incentives paid to program participants are a cost of administering the  
20 program and are passed on to the general body of customers through the  
21 Energy Conservation Cost Recovery (ECCR) clause. Unrecovered revenue  
22 requirements due to sales reduced by DSM reduce contributions toward  
23 covering fixed costs and therefore put upward pressure on rates for the general

1 body of customers. Both of these extremely important issues are ignored by  
2 the TRC test. The Commission has also long recognized that the use of TRC  
3 can result in cross subsidies between customers and could disproportionately  
4 impact low-income customers. In its Order No. PSC-94-1313-FOF-EG, the  
5 Commission stated:

6 *“We will set overall conservation goals for each utility based on*  
7 *measures that pass both the Participant and RIM tests... We find*  
8 *that goals based on measures that pass TRC but not RIM would*  
9 *result in increased rates and would cause customers who do not*  
10 *participate in a utility DSM measure to subsidize customers who*  
11 *do participate.”*

12 \*\*\*

13 *“All customers, including low-income customers, should benefit*  
14 *from RIM-based DSM programs. This is because RIM-based*  
15 *programs ensure that both participating and non-participating*  
16 *customers benefit from utility-sponsored conservation programs.*  
17 *Additional generating capacity is deferred and the rates paid by*  
18 *low-income customers are less than they otherwise would be.”*

19

20 Second, is the use of the two-year payback screening criterion to minimize the  
21 impact of “free riders.” The term free riders refers to the fact that many cost-  
22 effective conservation measures will be undertaken on a customer’s own  
23 volition, without the need for promotion or incentive provided by the

1 customer's utility company and paid for by the general body of customers. It  
2 simply recognizes that rational customers will act in their own economic  
3 interest and take measures to reduce energy consumption, if it is sufficiently  
4 attractive economically for them to do so without a utility incentive payment.  
5 It is an example of a free market economy working as it should – rational  
6 economic decisions being made in one's best interest without government  
7 intervention through mandates or provision of incentives.

8

9 A good example would be a customer deciding to install more efficient  
10 lighting. Customers make the economic decision to invest in such measures  
11 because it quickly benefits them economically. However, if such a customer  
12 also receives a utility incentive, then they become a free rider. If costs are  
13 incurred to incentivize such free riders, rates for the general body of  
14 customers will be higher than they need to be to achieve the same level of  
15 conservation.

16

17 It should be emphasized that the ultimate goal is to achieve the maximum  
18 amount of cost-effective conservation by the most efficient means. The  
19 objective is not to set DSM Goals higher than they should be simply for the  
20 sake of having higher Goals. A proper recognition of free riders is necessary  
21 to achieve the appropriate Goals.

1           The Commission has used a two-year payback criterion for decades as the  
2           threshold for the point below which a customer would be a free rider and,  
3           therefore, should not be considered eligible for an additional utility-provided  
4           incentive. This policy has been litigated in multiple previous DSM Goals  
5           proceedings wherein the Commission has determined it was an appropriate  
6           metric for determining free riders. In fact, the Commission reaffirmed their  
7           position in the 2014 DSM Goals docket, Order No. PSC-14-0696-FOF-EU,  
8           stating, “*We approved goals based on a two-year payback criterion to identify*  
9           *free riders since 1994 and we find it appropriate to continue this policy.*”  
10          This method remains an effective common-sense approach that is both  
11          reasonable and administratively efficient for meeting the Rule 25-17.0021,  
12          F.A.C., requirement that Goals reflect consideration of free riders. It ensures  
13          that incentives (and their associated impact to the rates of non-participants)  
14          will not be provided in an unnecessary situation.

15  
16          The last Commission policy is ensuring that DSM Goals are considered in the  
17          context of the utility’s IRP process. Rule 25-17.0021, F.A.C., states: “*In a*  
18          *proceeding to establish or modify goals, each utility shall propose numerical*  
19          *goals for the ten year period and provide ten year projections, based upon the*  
20          *utility’s most recent planning process...*” This language guarantees that the  
21          amount of cost-effective DSM being proposed is actually needed based on the  
22          current IRP. In other words, the utility’s customers are not asked to pay for  
23          more DSM than could be productively deployed on the utility’s system and

1           therefore, inclusion of the DSM Goals would result in rates for the general  
2           body of customers that are lower, or at a minimum no higher, than the plan  
3           would have been without including the DSM Goals. This also provides  
4           consistency with the amount of cost-effective DSM that is available to  
5           evaluate supply-side alternatives in need determination proceedings.

6

7           **IV.    SIGNIFICANT MARKET FORCES IMPACTING UTILITY DSM**

8

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

10          A.    There are two significant marketplace changes affecting FPL's DSM  
11          programs. First, as discussed in more detail in the testimony of FPL witness  
12          Sim, all but one of the drivers of FPL's system costs (*e.g.*, generation capital,  
13          system fuel cost, etc.) are significantly lower than in the past two DSM Goals  
14          dockets. FPL witness Sim's analysis shows that projected DSM benefits have  
15          decreased more than 33% in the five-year period since DSM Goals were last  
16          set. These reductions result in enormous benefits for all FPL customers, and  
17          Florida as a whole, by keeping electric rates low. However, avoiding system  
18          costs represents the primary cost-effectiveness benefits achieved through  
19          utility-sponsored DSM. Accordingly, if the value of costs "to be avoided"  
20          from DSM MW and MWh savings are lower, then fewer DSM programs will  
21          be cost-effective. Second, the ever-increasing Codes and Standards will  
22          continue to impact all appliances and building design.

1 **Q. Please elaborate on the effects of increased Codes and Standards.**

2 A. Increased Codes and Standards impact all residents and businesses by  
3 mandating higher energy efficiency minimums for prospective end-use  
4 equipment installations and/or building design improvements. The increasing  
5 impact of Codes and Standards for FPL is dramatic. As discussed by FPL  
6 witness Sim, in 2009, FPL projected that the reduction on its 2029 Net Energy  
7 for Load (NEL) from Codes and Standards would be 9,359,212 MWh. FPL's  
8 current projection of the impact on the 2029 NEL is 12,049,520 MWh – an  
9 increase of almost 29%. This means that very significant amounts of energy  
10 efficiency will still be delivered to FPL's customers. To provide context,  
11 FPL's 2019 NEL forecast for the year 2029 is 128,967,611 MWh, which  
12 means that the energy reduction delivered through Codes and Standards  
13 represents more than 9% of the total FPL's projected NEL.

14  
15 The Summer peak impacts are even more dramatic. In 2009, FPL projected  
16 that the peak load that would be reduced by Codes and Standards for 2029  
17 would be 2,209 MW. FPL's current projection of the impact on peak load in  
18 the year 2029 has increased to 4,820 MW. This represents an additional  
19 reduction in 2029 peak load of approximately 118%. To fully appreciate the  
20 truly significant amounts of peak load reduction for FPL's customers from  
21 Codes and Standards, consider that FPL's 2019 forecast of Summer peak load  
22 forecast for the year 2029 is 28,008 MW and, therefore, the 4,820 MW  
23 reduction represents more than 17% of FPL's total projected Summer peak

1 load. Because all customers must comply with the higher energy efficiency  
2 requirements, market penetration and therefore MW and MWh conservation  
3 impacts will be vastly higher as compared to induced participation in  
4 voluntary utility programs.

5  
6 In addition to the reduction in available MW and MWh savings opportunities  
7 for utility-offered DSM programs due to Codes and Standards' impacts, DSM  
8 programs are affected in two other ways by these increases. First, any utility-  
9 offered measures that are no longer above Codes and Standards are rendered  
10 obsolete. The previously-achieved utility participation and energy and  
11 demand savings will now be attained by the Codes and Standards instead,  
12 thereby replacing efficiency gain opportunities that used to be obtained from  
13 DSM programs. For example, in 2015 the minimum residential air  
14 conditioning Seasonal Energy Efficiency Ratio (SEER) standard was  
15 increased from the previous level of 13 to 14. As a result, FPL's previously-  
16 offered 14 SEER measure was eliminated from FPL's DSM program.

17  
18 Second, the "baseline" efficiency level also increases, reducing the  
19 incremental savings that the remaining DSM measures could achieve. For  
20 example, the 2015 residential air conditioning SEER level increase from 13 to  
21 14 resulted in a loss of 0.13 Summer kW and 275 annual kWh incremental  
22 savings for all higher SEER units. For a customer installing a straight-cool air  
23 conditioner with a 16 SEER, this represented efficiency replacements of more

1 than 35% for both Summer kW and annual kWh from the then-current 0.36  
2 Summer kW and 731 annual kWh savings (relative to the previous 13 SEER  
3 baseline). This Codes and Standards replacement of participating customer  
4 demand and energy savings significantly affected utility program/measure  
5 cost-effectiveness which caused FPL to eliminate some of its previously-  
6 incented higher SEER level units and put downward pressure on its sector-  
7 level DSM Goals, simply because there were less savings to be realized  
8 through DSM programs.

9

10 Lighting has been equally impacted by its Codes and Standards changes. In  
11 fact, in just the last few years, market dynamics have transformed to the point  
12 that LEDs have become the de facto, if not the only, reasonable choice for  
13 many lighting applications.

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

16 A. Yes. I have previously provided comparisons to the 2009 Goals docket. But,  
17 as described by FPL witness Sim, the increases are large even from the 2014  
18 DSM Goals docket where FPL's customers were projected to receive  
19 reductions of approximately 10,645,000 MWh and 3,705 MW peak load from  
20 Codes and Standards by 2029. The current savings projection is much higher  
21 at 12,049,520 MWh and 4,820 MW – approximately 15% and 30% larger,  
22 respectively. This means that FPL customers' usage as a whole is projected to  
23 be much more energy efficient than as recently as five years ago. Although

1 Codes and Standards reduce the economic viability of FPL's DSM versus the  
2 prior 2014 docket, the efficiency improvements will provide FPL's customers  
3 the same fuel savings, emission reductions and other benefits – the only  
4 difference is that FPL's non-participating customers will not have to fund the  
5 utility DSM incentives to get these efficiencies.

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

8 A. Yes. FPL's DSM portfolio has never been static. Over the decades, programs  
9 have been added, removed or modified to adapt to changing FPL resource  
10 requirements and market conditions. A few examples are: (a) in 2006, FPL  
11 faced increased short-term resource needs and significantly increased its DSM  
12 implementation by increasing LM recruitment and adding some new  
13 measures; (b) in 2012, FPL removed its residential air conditioning right-  
14 sizing measure because the Florida Building Code had been updated to  
15 mandate it; and (c) in 2015, as previously mentioned, FPL adjusted its  
16 residential air conditioning program for the 13 to 14 SEER change.

17

## 18 **V. 2020-2029 ACHIEVABLE POTENTIAL**

19

20 **Q. Please summarize the process that FPL used to develop its DSM**  
21 **Achievable Potential (AP).**

22 A. As described by FPL witness Whitley, measures from the TP are screened  
23 under both RIM and TRC cost-effectiveness tests coupled with the Participant

1 test, and the years-to-payback screening is also applied in both instances. Five  
2 unique measures passed the preliminary economic screening under RIM and  
3 56 passed under TRC.<sup>1</sup> Maximum incentives for each measure in the base  
4 case RIM and TRC screenings were also determined as part of this analysis.  
5 The measures that passed the preliminary screening tests and their maximum  
6 incentives were used as inputs to the next analysis, the determination of AP  
7 under both the RIM and TRC screening test paths. The AP determination  
8 analysis was performed under my direction.

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

10 A. The AP process used in this docket is the same basic approach used by FPL  
11 and relied upon by the Commission in the 2014 DSM Goals docket. For each  
12 measure that passed the EP preliminary screening under either RIM or TRC,  
13 FPL used a combination of quantitative information, qualitative information  
14 and FPL's market experience to develop the AP. The AP represents the sum  
15 of FPL's estimates of Summer MW, Winter MW and Annual MWh for 2020-  
16 2029 for each measure. In contrast to the TP and EP values, the AP MW and  
17 MWh values represent meaningful "real-world" inputs of DSM annual  
18 potential that can be reasonably achieved and used in the rest of FPL's IRP  
19 process.

---

<sup>1</sup> The RIM and TRC-passing unique measures expanded to over 38 and 873 permutations respectively when accounting for: three residential housing types; 13 commercial business types; 13 industrial segments, three commercial/industrial rate classes, and both new and existing construction.

1 Voluntary DSM programs recruit participants through marketing, education,  
2 training, and by providing financial incentives. A customer's decision on  
3 whether or not to participate in a given DSM measure is the result of many  
4 interrelated factors. FPL calculated the estimated ten-year customer adoption  
5 level, or participation, on a measure-by-measure basis relying on a number of  
6 elements that reflect FPL's market experience:

- 7 • Historical FPL adoption rates – provided “baseline” market experience  
8 reflecting both the empirical and the non-quantifiable factors (such as  
9 customer awareness, etc.);
- 10 • Projected changes in market conditions – used to adjust historic  
11 adoption for changes, such as lower projected incentives;
- 12 • Change in participant's years-to-payback – with compared to without  
13 the maximum incentives; and
- 14 • Payback Acceptance Curves – provided the percent of customers who  
15 should select a measure based on years-to-payback. These curves are  
16 based on customers' stated preferences from market research.

17

18 For currently-offered measures, FPL used its historic achievements adjusted  
19 for any changes in incentive levels. For new measures (*i.e.*, those not  
20 included in FPL's current DSM portfolio), the Year 1 (2020) participation was  
21 assumed to be zero due to the likely timing of final DSM Plan and Program  
22 Standards approvals and the time and logistics required to launch and generate  
23 customer awareness – all of which will likely take essentially all of 2020 to

1 complete. For 2021-2029, FPL applied a two-year ramp-up rate, until the  
2 measure reached its steady-state adoption, at which point customer growth  
3 rates based on FPL's 2019 TYSP projections were applied.

4  
5 For residential measures, each customer residence represents one participant.  
6 For business measures, due to the differences between various types of  
7 businesses, a "participant" was normalized to one Summer kW, which put the  
8 calculations on a standardized basis. The projected adoption values were  
9 translated into their respective kW and kWh amounts and then summed to  
10 create the residential and business sector AP under both RIM and TRC  
11 screening test paths.

12 **Q. What are FPL's RIM and TRC APs for 2020-2029?**

13 A. FPL's RIM and TRC APs are shown in Exhibit TRK-3.

14 **Q. Why are the ten-year AP amounts lower than the TP?**

15 A. It should be expected that the AP will be substantially less than the TP. The  
16 TP is a theoretical construct that essentially represents 100% market  
17 penetration everywhere a measure is assumed to be technically feasible. In  
18 contrast, the AP represents the amount of demand and energy savings that are  
19 both preliminarily cost-effective and projected to be reasonably achievable  
20 through voluntary customer participation in the marketplace over the ten-year  
21 Goals period.



1 vetting of all assumptions, that Nexant witness Herndon and FPL witnesses  
2 Whitley, Sim and I describe. FPL's proposed Goals were developed in  
3 compliance with Rule 25-17.0021, F.A.C., and the traditional goal-setting  
4 policies that have served FPL's customers well over the years by providing  
5 substantial amounts of DSM while keeping all customers' electric rates low.

6  
7 FPL's proposed Goals of 352 Summer MW, 259 Winter MW and 1,023 MWh  
8 appropriately reflect the amount of cost-effective DSM reasonably achievable  
9 over the ten-year planning period and, after accounting for the 20% total  
10 reserve margin, is equivalent to avoiding yet another 400 MW power plant, on  
11 top of the 15 such plants that FPL's DSM programs have already avoided.  
12 Though both annual and cumulative figures are shown, FPL proposes the  
13 Commission return to the use of cumulative Goals which had been the case  
14 prior to 2009.

15 **Q. Is it reasonable that the 2020-2029 Goals are lower than those established**  
16 **in 2014?**

17 A. Yes. Goals can, will and should vary, potentially significantly, from one reset  
18 period to another. As previously discussed, there have been significant  
19 market changes since 2014 which have reduced utility-sponsored DSM  
20 competitiveness. Setting prospective Goals should not be done based on an  
21 arbitrary target (such as previously-established Goals or a percentage of total  
22 sales), but instead should be based on the level that the IRP analytics  
23 determine, using current forecasts and assumptions, represent the lowest long-

1 term electric rate impacts for FPL's customers. The end objective is certainly  
2 not to have ever-increasing conservation goal levels without regard to cost and  
3 electric rates. Rather, the objective is to have appropriate goals, regardless of  
4 their absolute value. The DSM Goals, whether higher or lower, are not an end  
5 in themselves, but instead represent one of the resources available to meet  
6 projected needs in the most cost-effective manner possible in order to keep  
7 electric rates and customer bills as low as possible.

8 **Q. Considering savings from all sources – FPL's proposed DSM Goals as**  
9 **well as Codes and Standards – what is the impact on projected total peak**  
10 **demand and annual energy reductions in the current docket v. the 2014**  
11 **docket?**

12 A. Overall, when factoring in all sources of savings, from both DSM Goals and  
13 due to Codes and Standards, FPL customers are currently projected to receive  
14 significantly more total MW and MWh reductions by the end of the Goals  
15 period in 2029 than the previous projection from the 2014 DSM Goals.

16

17 FPL customers are currently projected to have 4,820 MW of peak reduction  
18 from Codes and Standards in 2029. Adding the 352 MW savings from FPL's  
19 proposed Goals yields a total of 5,172 MW. The similar projection from 2014  
20 showed customers were projected to receive 3,705 MW of peak reduction  
21 from Codes and Standards in 2029. With the addition of 526 MW from  
22 utility-sponsored DSM, the total was 4,231 MW. Therefore, the current  
23 projection represents more than a 22% savings increase.

1 For annual energy reduction, FPL customers are projected to have 12,049,520  
2 MWh of annual energy reduction from Codes and Standards in 2029.  
3 Including the 1,023 MWh from FPL's proposed Goals yields a total of  
4 12,050,543 MWh. The similar projection from 2014 showed customers were  
5 projected to receive 10,645,000 MWh of annual energy reduction from Codes  
6 and Standards in 2029. With the addition of 526,274 MWh of utility-  
7 sponsored DSM, the total was 11,171,274 MWh of annual energy reduction.  
8 Therefore, the current projection represents an approximate 8% savings  
9 increase.

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

12 A. No. As a normal course of business, FPL continually looks for opportunities  
13 to reduce the cost of providing electrical service to our customers. The  
14 potential for supply-side improvements is continually evaluated by FPL in its  
15 ongoing resource planning analyses. As noted in FPL witness Sim's  
16 testimony, the fuel-efficiency of FPL's generating system has dramatically  
17 improved evidenced by the heat rate of FPL's fossil fuel generating units  
18 having improved by approximately 29% since 2001 and continuing to  
19 improve. Supply-side efficiency and conservation are also analyzed in every  
20 need determination for new generation. Rule 25-17.001, F.A.C., supports this  
21 stating: ". . . *general goals and methods for increasing the overall efficiency*  
22 *of the bulk electric power system of Florida are broadly stated since these*  
23 *methods are an ongoing part of the practice of every well-managed electric*

1           *utility’s programs and shall be continued.*” The Commission agreed with this  
2           position in its 2009 Goals Order stating:

3                     *“Supply-side measures require substantially different analytical*  
4                     *methods than do demand-side systems and provide results that*  
5                     *are difficult to combine with conservation goals. Supply-side*  
6                     *efficiencies and conservation, rendered properly, would result*  
7                     *either in less fuel being required or less loss along the*  
8                     *transmission and distribution network. The Commission routinely*  
9                     *addresses opportunities for supply-side efficiency improvements*  
10                    *in our review of Ten-Year Site Plans. Therefore, such measures*  
11                    *are better addressed separately from demand-side measures*  
12                    *where their options can be better explored.” and “... goals in*  
13                    *these areas will not be set as part of this proceeding.”*

14           The Commission reaffirmed this position in its 2014 Goals Order.

15   **Q.   How do the proposed goals impact the development of demand-side**  
16   **renewable energy systems?**

17   A.   None of the demand-side renewable energy (DSRE) system measures proved  
18   cost-effective in the analysis.   Therefore, beyond the provisions already  
19   included in Rule 25-6.065, F.A.C., Goals for DSRE systems should be zero.  
20   This is consistent with the Commission’s 2014 Goals Order decision which  
21   stated that:

22                     *“Each of the IOUs should continue to implement the provisions of*  
23                     *Rule 25-6.065, F.A.C., Interconnection and Net Metering of*



1 customer base as a whole. The final prong is participation in FPL's Low  
2 Income program which is designed specifically for low income customers.  
3 This program includes measures that do not pass RIM and some that have  
4 customer payback periods of less than two years.

5 **Q. Why is FPL proposing to retain and expand its Low Income Program in**  
6 **this proceeding?**

7 A. As previously discussed, in the decades since FEECA was enacted, the  
8 marketplace has evolved dramatically. While utility-provided incentives for  
9 traditional EE measures no longer make sense because they are not cost-  
10 effective, they have been one of the sources of assistance to low income  
11 customers. In recognition of these changes, FPL is proposing to retain and  
12 expand its existing Low Income program. Although this program is not cost-  
13 effective, FPL believes continuing to provide assistance to this vulnerable  
14 group is appropriate and warranted to replace eliminated EE program options  
15 that will no longer be available. This proposal is consistent with the  
16 Commission 2014 Goals docket Order No. PSC-14-0696-FOF-EU, wherein  
17 the Commission recognized the importance of supporting these customers. If  
18 approved, the estimated ten-year amounts of 14 Summer MW, 4 Winter MW  
19 and 34,000 MWh associated with this proposal should be added to FPL's  
20 currently proposed 2020-2029 DSM Goals.

21 **Q. Please describe FPL's proposed R&D pilot project for EVs and its**  
22 **purpose.**

23 A. With traditional EE measures no longer being viable, FPL is searching for

1 potential next-generation DSM program replacements. Due to the projected  
2 460 Summer MW increase from EVs to FPL's system through 2028 as shown  
3 in FPL's 2019 TYSP, FPL proposes adding a pilot project to the existing CRD  
4 program to evaluate the technical and operational feasibility of reducing the  
5 peak demand impact of residential EV chargers through direct utility control.  
6 This pilot would also assess the design parameters for a cost-effective DSM  
7 program. Consistent with FPL's other CRD projects, any associated kW or  
8 kWh savings would not be additive to FPL's 2020-2029 DSM Goals.

9 **Q. Does this conclude your direct testimony?**

10 A. Yes.

1 BY MR. COX:

2 Q Mr. Koch, did you also have exhibits TRK-1  
3 through TRK-4 attached to your prefiled testimony?

4 A Yes.

5 Q Do you have any corrections or changes to the  
6 those exhibits, TRK-1 through TRK-4?

7 A No, I don't.

8 MR. COX: Chairman Graham, these exhibits have  
9 been identified as Exhibits 2 through 5 on the  
10 staff comprehensive exhibit list that was admitted  
11 earlier today.

12 CHAIRMAN GRAHAM: Duly noted.

13 BY MR. COX:

14 Q Mr. Koch, have you prepared a summary of your  
15 direct testimony?

16 A Yes, I have.

17 Q Could you please present your summary to the  
18 Commission at this time?

19 A Certainly.

20 Good afternoon, Chairman Graham and  
21 Commissioners.

22 Utility sponsored DSM is one of two types of  
23 resources that compete to meet customers' future loads.  
24 The purpose of FEECA is straightforward, to encourage  
25 customers to adopt conservation measures they would not

1 do so otherwise on their own. This is done through  
2 education and cost-effective financial incentives.

3 DSM picks up where Florida Building Code and  
4 federal manufacturing standards leave off, and it's  
5 critical to implement DSM in a cost-effective manner to  
6 ensure fairness to all.

7 For more than 40 years, FPL has delivered DSM  
8 programs that help customers manage their energy usage  
9 while avoiding measures that result in higher electric  
10 rates than supply-side alternatives. Savings have been  
11 very large, equaling over 4,800 megawatts and 86,000  
12 gigawatt hours.

13 If you take nothing else away from my  
14 testimony, it's this: DSM's competitiveness has been  
15 declining for many careers to the point now for FPL  
16 where it's reached zero energy efficiency measures that  
17 are cost-effective. This is unsurprising given FPL's  
18 reported information in past dockets, and the reasons  
19 detailed in other witness testimonies are also not new.

20 First, FPL's system costs continue to drop  
21 dramatically. In fact, they are down 33 percent in just  
22 the last five years alone.

23 Second, mandated efficiency from codes and  
24 standards is projected to be much higher than ever  
25 before, over 4,800 megawatts and 12,000 gigawatt hours

1 by 2029. Both of these are fantastic for FPL's  
2 customers, but significantly reduce DSM's  
3 competitiveness.

4 The development of FPL's proposed goals  
5 requires multiple analyses and a month-long rigorous  
6 six-step process. I performed step four, the achievable  
7 potential, which represents the reasonable achievable  
8 participation based on the maximum cost effective  
9 incentives from each measure that passed economic  
10 screening.

11 FPL's proposed 2020 through 2029 DSM goals are  
12 352 summer megawatts, 259 winter megawatts, and 1,023  
13 megawatt hours. They are compliant with Florida  
14 Statutes, Commission rules and traditional goal setting  
15 policies, reflect impact and market forces and will  
16 continue to maintain low rates for all customers.

17 As expected, they are lower than past goals,  
18 but customers will, in fact, receive more megawatt and  
19 gigawatt hours savings by 2029 than projected in the  
20 2014 dockets when they are coupled with codes and  
21 standards.

22 FPL has also proposed to retain and expand  
23 participation in its low income program as part of its  
24 DSM plan. If they are cost-effective, FPL believes it's  
25 appropriate it to assist these customers and add the

1 associated megawatts and gigawatt hours to its proposed  
2 residential goals.

3 Commissioner, proposed goals represent FPL's  
4 reasonably achievable and cost-effective DSM potential  
5 for 2020 through 2029, and we respectfully request they  
6 be approved.

7 Thank you.

8 MR. COX: Chairman Graham, the witness, Mr.  
9 Koch, is tendered for cross-examination.

10 CHAIRMAN GRAHAM: Thank you.

11 We are going to start on the end with OPS and  
12 work our way across.

13 Remember, there is no friendly cross. Staff  
14 if you hear friendly cross, feel free to bark up.  
15 I will also cut them off if I hear friendly cross,  
16 because I know with this docket, there is a lot of  
17 people that float close to the same level. So I  
18 just want to make sure we don't go down that path.

19 Mr. Koch, welcome.

20 MR. DAVID: Thank you.

21 EXAMINATION

22 BY MR. DAVID:

23 Q Mr. Koch, FPL has -- you mentioned FPL has low  
24 income residential DSM programs, correct?

25 A That's correct.

1           Q     And your low income program includes measures  
2     that do not pass the RIM test, correct?

3           A     That's correct.

4           Q     And did you use the TRC in establishing the  
5     achievable potential for the DSM goals?

6           A     No, we didn't. We used the RIM test, coupled  
7     with the Participant test for establishing DSM goals.

8           Q     Okay. And some of the measures in the low  
9     income DSM programs include the paybacks that are less  
10    than two years, is that correct?

11          A     You are correct.

12          Q     But FPL is planning to retain these low income  
13    programs, correct?

14          A     Yes. As FPL looks at it, it's a policy  
15    decision at the Commission's discretion, which, in 2014,  
16    the Commission proposed that we continue with these  
17    types of measures, and FPL believes it's appropriate and  
18    continue to do so in this docket as well.

19          Q     All right. And do you agree that the  
20    34,000-megawatt hours associated with this proposal  
21    should be added to the 2020 through 2029 DSM goals?

22          A     Yes. Our proposal is that they would be added  
23    to the residential goals that we have proposed, both for  
24    the gigawatt hours, as you spoke about, as well as the  
25    megawatts.

1 MR. DAVID: That's all for OPC.

2 CHAIRMAN GRAHAM: Thank you.

3 FIPUG.

4 EXAMINATION

5 BY MR. MOYLE:

6 Q I just happen to have a few questions.

7 You had mentioned about the costs coming down  
8 as time has gone on, is that right, in your opening?

9 A Yes, that's correct.

10 Q Yeah. And there are a number of things that  
11 factor into the costs, correct?

12 A Yes.

13 Q So one of them is the forecasted gas prices,  
14 correct?

15 A Yes, fuel costs definitely factor in.

16 Q All right. And carbon forecasted price are  
17 also a factor, correct?

18 A Yes. However, I would say that either witness  
19 Whitley or Sim are, you know, more familiar with all of  
20 the components that go into the resource planning since  
21 that's their area of expertise.

22 Q Right. I guess -- and I will maybe delve into  
23 that with them, or others. But obviously, those are  
24 components that could change as time goes on, correct?

25 A That's correct.

1           Q     Yeah.  And you had talked about a two-year  
2     payback.  Is there a Commission rule that says you got  
3     to use a two-year payback, or is that something that the  
4     Commission, as they consider the evidence before them,  
5     they could say, well, we think maybe it will be less,  
6     like, I think you said they have discretion to do with  
7     respect to low income, or it could be more, is that --  
8     what's your understanding in that respect?

9           A     Well, obviously this will not be a legal  
10    opinion, but my understanding is that this is the  
11    Commission's practice since 1984 -- 1994, has been to  
12    use the two-year payback as a screen for free-ridership,  
13    and that has been deemed to be an appropriate method.  
14    And that was reaffirmed in the 2014 decision.

15          Q     All right.  And so with respect to whether  
16    there is a rule or not, do you know one way or the  
17    other?

18          A     I haven't seen it written in the rule, per se.

19          Q     Okay.  And have you guys looked at all to say,  
20    is that the right number, or done any analysis with  
21    respect to a longer payback period?

22          A     As part of this docket, we analyzed both a  
23    one-year and a three-year sensitivity analyses.  All the  
24    utilities did.

25          Q     Okay.  One other point that you made, you had

1 said in your opening about the energy efficiency when  
2 coupled with codes and standards. And when you use the  
3 phrase codes and standards, is code a reference to  
4 energy codes?

5 A It's a reference to Florida Building Code.

6 Q Okay. And standards are a reference to what?

7 A The federal equipment manufacturing standards.

8 Q All right. So one is construction related and  
9 the other is appliance related when you say codes and  
10 standards?

11 A I think that would be a fair characterization.

12 Q Okay. And has any effort been made to capture  
13 how much energy efficiency is realized from codes and  
14 standards?

15 A Yes. In fact, FPL does calculate that and  
16 witness -- excuse me, Dr. Sim has a detailed calculation  
17 of that information that would be available.

18 MR. MOYLE: Okay. That's all I have. Thank  
19 you.

20 CHAIRMAN GRAHAM: Thank you.

21 Yes, ma'am.

22 MS. CORBARI: FDACS has no questions of the  
23 witness.

24 CHAIRMAN GRAHAM: Okay. PCS Phosphate.

25 MS. WYNN: PCS doesn't have any questions, and



1 A Excuse me, did you say page six?

2 Q Yes.

3 A Okay, I am there.

4 Q FPL assigned a administrative cost of \$29 --  
5 well, first of all, let me ask you this: Starting at  
6 the bottom of page six and going through the top of page  
7 eight, are there various lightbulbs?

8 A Yes, there are.

9 Q And FPL assigned an administrative cost of \$29  
10 for each of those measures, is that right?

11 A That's correct.

12 Q And this would be the per participant cost for  
13 each of those measures?

14 A Yes. This would be a per household cost for  
15 each one of these -- each one of these measures.

16 Q And if I could direct your attention to  
17 page -- also on page eight, do you see the measure for  
18 variable speed pool pump?

19 A Yes, I do.

20 Q And FPL also assigned a \$29 administrative  
21 cost to that measure?

22 A Yes, that's correct.

23 And just to be clear, these costs are based  
24 upon what is a typical cost for FPL programs as they  
25 exist today. That's how we determined our

1 administrative cost. You can see there is some  
2 variation in them depending upon the type of measure.  
3 But I would also add that the fact that this is here had  
4 no impact whatsoever on the achievable potential,  
5 because all of these measures failed the two-year  
6 payback.

7 **Q And if I could also direct your attention to**  
8 **page five of that exhibit.**

9 A I am there.

10 **Q Do you see the 21 SEER air source heat pump**  
11 **from base electric resistance heating?**

12 A Yes, I do.

13 **Q And FPL only assigned \$19 of administrative**  
14 **costs for that measure?**

15 A That's correct, because that's the cost that  
16 we have been -- that we experience in our residential  
17 air conditioning program. It's based on that.

18 **Q Would you agree that a 21 SEER air source heat**  
19 **pump costs a bit more than the lightbulb?**

20 A Of course, but the administrative cost has  
21 nothing whatsoever to do with the cost of the appliance.

22 **Q And you would also agree that a 21 SEER air**  
23 **source heat pump would be more complicated to install?**

24 A But the administrative cost here has to do  
25 with FPL's administration. It has nothing to do with

1 the installation cost. It's performed by a contractor.

2 Q But directing your attention back to my  
3 question, you would agree it would be more complicated  
4 to install?

5 A Yes, it's more complicated to install.

6 Q And if I could direct your attention back to  
7 page eight. FPL also assigned an administrative cost of  
8 \$29 to faucet aerators?

9 A Yes, I see that.

10 Q And on page nine, also assigned \$29 to low  
11 flow shower heads?

12 A I found it. Yes, that's correct.

13 Again, none of these passed the two-year  
14 payback screening, so none of them made it through the  
15 achievable potential.

16 Q If I could direct your attention -- it might  
17 not be at the top. Do you see in your pile FPL response  
18 to staff Interrogatory No. 32 from staff's second set of  
19 interrogatories?

20 A Yes, I have that.

21 MR. MARSHALL: And for the record, this is an  
22 excerpt of staff Exhibit 101.

23 BY MR. MARSHALL:

24 Q And this -- the answer to this interrogatory  
25 was amended?

1           A     I will tell you that Gerry Yupp signed this --  
2     Gerry Yupp signed this. This is not my exhibit, so I am  
3     not really familiar with this information.

4           Q     **Sure. Well, between -- let me ask you this:**  
5     **Between you, Dr. Sim and Mr. Whitley, who would be the**  
6     **best person here today to ask about this?**

7           A     Let's see, it concerns fuel forecast. I am  
8     not certain. It would either be Mr. Whitley or Dr. Sim.  
9     I think you would have to ask them.

10          Q     **Well, I mean, do you think you can at least**  
11     **see what numbers that FPL reported here?**

12          A     Okay.

13          Q     **In this interrogatory, FPL was asked about its**  
14     **natural gas price forecast, is that right?**

15          A     Well, I see that it says natural gas price  
16     forecast.

17          Q     **And I just want to confirm that on the amended**  
18     **answer, it says that FPL had an average error rate of**  
19     **53 percent on -- five years out?**

20          A     I am not certain what you are referring to,  
21     and I am really not familiar with this information,  
22     so --

23          Q     **Let me just ask this: Do you see the -- do**  
24     **you see the amended response?**

25          A     Is that the one in color?

1 Q Yes.

2 A Yes.

3 Q And do you see the first table that says  
4 natural gas price annual variance?

5 A I do.

6 Q And do you see right below that, it says years  
7 prior?

8 A Yes.

9 Q And then there is a column that says five?

10 A I see that.

11 Q And at the bottom of that column, it says  
12 average?

13 A Yes, I see that.

14 Q And it says the average is 53 percent?

15 A That's what it says.

16 Q And if I could direct your attention back to  
17 the unamended answer. In this answer, FPL did state  
18 that future natural gas prices are inherently uncertain  
19 due to a significant number of unpredictable and  
20 uncontrollable drivers that influence the short-term and  
21 long-term prices.

22 A I see that statement.

23 MR. COX: Chairman Graham, could I lodge an  
24 objection? I mean, this witness says he is not  
25 familiar with this exhibit. It was a response

1 provided by FPL, we will attest that it is accurate  
2 information that we provided in the record and was  
3 stipulated with the staff's exhibits, but I don't  
4 see the point of going through this with Mr. Koch,  
5 who is not familiar with the specific numbers that  
6 is being asked about.

7 CHAIRMAN GRAHAM: Let's move on to something  
8 else.

9 MR. MARSHALL: Okay.

10 CHAIRMAN GRAHAM: I was going to allow you to  
11 ask questions and give have him get the chance to  
12 answer it until the attorney said that he is not  
13 familiar with this, so let's move on.

14 MR. MARSHALL: Yes, Mr. Chairman.

15 BY MR. MARSHALL:

16 Q Mr. Koch, FPL conducted its own achievable  
17 potential analysis?

18 A That's correct.

19 Q Do you see the next exhibit, it says in  
20 quotes, 20190015-SACE's first PODs No. 3-AP-RIM and  
21 TRC-final, end quotes, tab, quotes, AP-total@gen, end  
22 quotes, from FPL response to SACE first set of PODs Nos.  
23 1 through 16?

24 A Yes, I have that.

25 MR. MARSHALL: And this is going to be a new

1 exhibit, Mr. Chairman.

2 CHAIRMAN GRAHAM: Okay. Which one is that?  
3 It's the one with the -- what does it say with the  
4 description on the front?

5 MR. MARSHALL: It says 20190015, SACE's first  
6 PODs No. 3 AP RIM and TRC final.

7 CHAIRMAN GRAHAM: Got you. Got you. We will  
8 give it Exhibit No. 265.

9 (Whereupon, Exhibit No. 265 was marked for  
10 identification.)

11 BY MR. MARSHALL:

12 Q And FPL based its goals on the achievable  
13 potential for RIM, is that right?

14 A Yes, RIM coupled with the Participant test.

15 Q And looking at this tab here, do you see the  
16 achievable potential for RIM at the top of the page?

17 A Yes, I can barely make it out.

18 Q And you see under the percent for total  
19 achievable potential RIM, it's broken out between load  
20 management and energy efficiency?

21 A Yes, I see that.

22 Q And zero percent of the RIM goals are from  
23 energy efficiency?

24 A Yes, that's correct, because none of the  
25 energy efficiency measures came out of the economic

1 screening.

2 Q And zero is from low income programs, is that  
3 right?

4 A That's correct, in this.

5 Q FPL has proposed 34 gigawatt hours for FPL's  
6 low income programs, is that correct?

7 A Yes, that's correct.

8 Q But the proposed goals for this proceeding are  
9 approximately one gigawatt hour?

10 A Yes.

11 Q And so over a 10-year period -- over the --  
12 and this would be for the next 10-year period, is that  
13 right?

14 A That's correct, for gigawatt hours, yes; and  
15 about 350 odd for megawatts, which is about another  
16 power plant being avoided.

17 Q Over that 10-year period, one customer would  
18 use about 130,000-kilowatt hours, is that right?

19 A How did you come up with that?

20 Q Customer uses about -- a resident -- this is  
21 residential customer. They use approximately 13,000  
22 kilowatt hours a year in FPL's territory?

23 A A little less, but for sake of argument, okay,  
24 I understand how you came up with that.

25 Q Okay. And so over 10 years, that would be

1 **about 0.13 gigawatt hours per residential customer?**

2 A Subject to check that the decimal moved the  
3 right way there.

4 Q **And so one gigawatt -- the one gigawatt hour**  
5 **FPL is proposing to save over the next 10 years under**  
6 **the RIM achievable potential would be about the**  
7 **equivalent power usage of approximately eight**  
8 **residential homes?**

9 A I will agree with your math subject to check.  
10 But, again, that has nothing to do with how goals are  
11 determined. They are determined if measures are  
12 cost-effective, and the outcome is the outcome. If the  
13 measure goes through cost-effectiveness, then it will  
14 have its associated kW and kWh. If the measure doesn't  
15 go through, it will be zero.

16 Q **But FPL does have over 10 million people in**  
17 **its territory?**

18 A We have about five million customers. I am  
19 not 100 percent certain how many -- what the population  
20 is that represents.

21 Q **And the majority of those customers would be**  
22 **residential customers?**

23 A That's correct.

24 Q **If I could direct your attention to 20190015,**  
25 **SACE's first POD's No. 3-AP and TRC-final, tab AP TRC**

1 from FPL response to SACE first set of POD's Nos. 1  
2 through 16?

3 A Yes, I have that.

4 MR. MARSHALL: And this would be a new  
5 exhibit, so I believe this will be 266.

6 CHAIRMAN GRAHAM: Wasn't that the one we just  
7 labeled 265?

8 MR. MARSHALL: Yes. This will be -- this is a  
9 new one.

10 CHAIRMAN GRAHAM: Which is the new one?

11 MR. MARSHALL: The next tab AP TRC. It's from  
12 the same spreadsheet, but it's another tab, so it's  
13 labeled as a separate exhibit. So it's the other  
14 big chart but with a lot more rows.

15 COMMISSIONER POLMANN: Multiple pages.

16 CHAIRMAN GRAHAM: I have one big chart. I  
17 don't know that I have the other.

18 COMMISSIONER POLMANN: It's this. This one.

19 CHAIRMAN GRAHAM: Okay.

20 MR. MARSHALL: It should be the following  
21 document if we did our job properly.

22 CHAIRMAN GRAHAM: All right. That will be  
23 266.

24 (Whereupon, Exhibit No. 266 was marked for  
25 identification.)

1 COMMISSIONER POLMANN: It's multiple pages?

2 CHAIRMAN GRAHAM: Thank you.

3 BY MR. MARSHALL:

4 Q This was -- this spreadsheet represents part  
5 of FPL's achievable potential analysis for TRC?

6 A You are correct.

7 Q And the -- do you see the 14 SEER ASHP from  
8 base electric resistance heating?

9 A Yes, I do.

10 Q And this was given a achievable potential of  
11 zero because the incentive was considered too small?

12 A Yes, that's correct.

13 Q And the incentive was halted at 2.0 years, is  
14 that right?

15 A Yes, under TRC, that's correct.

16 Q And so in the case of the 14 SEER ASHP, that  
17 brought the payback down from 2.2 years to 2.0 years?

18 A Right. Essentially a couple of months was the  
19 payback delta that resulted from the maximum  
20 cost-effective incentive. Or in this case, it was about  
21 30 odd dollars.

22 Q And similarly, do you see the measure the  
23 smart thermostat? It should be row 15.

24 A Yes, I do.

25 Q And that also had a payback improvement of

1 **less than one year?**

2 A That's correct.

3 **Q And so that was also given an achievable**  
4 **potential of zero?**

5 A Yes, it was. And FPL has been involved in  
6 incenting smart thermostats for some time, and this  
7 level of incentive has resulted in virtually no  
8 participation.

9 **Q And if I could also direct your attention to**  
10 **the two-speed pool pump measure.**

11 A I see that.

12 **Q And that was given an achievable potential?**

13 A Yes.

14 **Q And it was given a four-percent uptake, is**  
15 **that right?**

16 A That's correct, because of the fact that even  
17 with this amount of incentive, the alternate choice,  
18 which is the one-speed pool pump, single speed pool  
19 pump, it's -- this is still dramatically, dramatically  
20 more expensive.

21 **Q And just looking at the -- you also, on this**  
22 **sheet, below the residential measures, have the**  
23 **commercial and industrial measures analysis for the**  
24 **achievable potential?**

25 A Yes. All the measure permutations are listed

1 there, yes.

2 Q And everything that had a payback of less than  
3 three years only had its payback reduced to two years,  
4 and was, thus, assumed that the achievable potential  
5 would be zero?

6 A Could you ask that again, please?

7 Q Sure.

8 Basically for all those measures that had a  
9 payback of less than three years, they only had their  
10 payback reduced to two years, is that right?

11 A That's correct. That was the -- was that the  
12 farthest we would go with a payback which is consistent  
13 with the screening for the two-year payback.

14 Q And those measures that originally had a  
15 payback of less than three years were, thus, assumed to  
16 have zero achievable potential?

17 A What you are looking -- yeah, it's sort of --  
18 that's sort of conflating two ideas. The one is that we  
19 go down to two years because that's consistent with the  
20 point where, you know, higher free-ridership is going to  
21 be coming into play, and that's the purpose of the  
22 two-year payback screen.

23 The second question, when you come to  
24 achievable potential, is how much participation can you  
25 induce by the amount of incentive you can give. And so

1 if you are only giving that ask a comparatively dinky  
2 incentive, or small incentive, that's really not going  
3 to incent anybody to take the measure. So that's the  
4 basis for that. So they are similar sounding concepts  
5 but applied differently.

6 Q And just to be clear, it, thus, was assumed  
7 that for those measures that had a payback of less than  
8 three years, having their payback reduced to two years,  
9 there would be no achievable potential for those  
10 measures?

11 A I would say for the most part that's correct,  
12 for the reason I stated.

13 Q All right. If I could direct your attention  
14 to the two single sheets that are both from POD 25 and  
15 are ICF payback acceptance curve data and then the  
16 actual acceptance curves. It should be --

17 A Excuse me, I am not certain what you are  
18 talking about. Ah, I see that one.

19 Q And the other one should be right with it,  
20 should have the actual data --

21 A Oh, okay, I have got those, yes.

22 MR. MARSHALL: And for the record, these are  
23 both excerpts of staff Exhibit 120.

24 CHAIRMAN GRAHAM: Which is which? We are up  
25 to 267 and 268.

1 MR. MARSHALL: It's up to you Mr. Chairman  
2 whether you want us to mark them since they are  
3 already in the record.

4 CHAIRMAN GRAHAM: Let's go ahead and mark them  
5 for convenience.

6 MR. MARSHALL: Okay. Let's make the graph,  
7 the one that says the ICF payback acceptance curve  
8 267.

9 CHAIRMAN GRAHAM: Okay.

10 (Whereupon, Exhibit No. 267 was marked for  
11 identification.)

12 MR. MARSHALL: And then the acceptance curve  
13 data with the actual numbers, 268.

14 CHAIRMAN GRAHAM: Sounds good.

15 (Whereupon, Exhibit No. 268 was marked for  
16 identification.)

17 MR. COX: I am sorry, Mr. Marshall, I see one  
18 exhibit. I see the graph. Where is the other one?

19 MR. MARSHALL: It should be right behind it.

20 CHAIRMAN GRAHAM: It should have been just  
21 before or just after it.

22 MR. COX: Thank you.

23 BY MR. MARSHALL:

24 Q Mr. Koch, looking at these Exhibits, would it  
25 be fair to say that as payback period decreases, percent

1 customer adoption goes up?

2 A Yes, that would be correct.

3 Q I know that was a really long line of  
4 questions on that one.

5 A Oh, sorry. I thought there was more.

6 Q If I could direct your attention to FPL  
7 response to staff's Interrogatory No. 64 from staff's  
8 fifth set of interrogatories.

9 CHAIRMAN GRAHAM: We will give this 269.

10 MR. MARSHALL: And this is an excerpt of staff  
11 Exhibit 104, but we can make this Exhibit 269.

12 (Whereupon, Exhibit No. 269 was marked for  
13 identification.)

14 BY MR. MARSHALL:

15 Q You sponsored this interrogatory answer?

16 A Yes, I did.

17 Q And it's true, then, that FPL has not expended  
18 the cost and time for EMEV research in order to further  
19 quantify a payback period for purposes of evaluating  
20 free-ridership?

21 A Yes, that's correct. FPL does EMEV for the  
22 programs it offers to establish the demand and energy  
23 savings for those, but we haven't done this for the  
24 purposes that is requested here. And in fact, that's  
25 consistent with the Commission order in the last DSM

1 goals docket.

2 Q All right. If I could direct your attention  
3 to FPL response to staff Interrogatory No. 104 from  
4 staff's tenth set of interrogatories. This would be, I  
5 believe Exhibit 270 at this point, although it is an  
6 excerpt of staff Exhibit 109.

7 CHAIRMAN GRAHAM: We will label it 270.

8 (Whereupon, Exhibit No. 270 was marked for  
9 identification.)

10 BY MR. MARSHALL:

11 Q And you also sponsored the answer to this  
12 interrogatory?

13 A Yes, I did.

14 Q And this interrogatory inquired about  
15 free-ridership as well?

16 A Yes, that's correct.

17 Q And so FPL has not conducted any survey to  
18 assess the percent and number of free rider customers,  
19 is that right?

20 A Yes, that's correct. And in FPL's view, this  
21 is rather subjective, these surveys that are done with  
22 customers, and they tend to be complex, expensive and  
23 ultimately a fairly contentious issue in DSM proceedings  
24 as different people interpret them differently.

25 Q And so FPL has not solicited any bids for such

1 surveys?

2 A No, we have not.

3 Q If I could direct your attention to FPL  
4 response to staff Interrogatory No. 52 from staff's  
5 second set of interrogatories. This would be -- this is  
6 an excerpt from staff Exhibit 101, but we can also mark  
7 it Exhibit No. 271?

8 CHAIRMAN GRAHAM: 271, correct.

9 (Whereupon, Exhibit No. 271 was marked for  
10 identification.)

11 MR. COX: I am sorry, Mr. Marshall, what was  
12 the description of that exhibit again?

13 MR. MARSHALL: FPL response to staff  
14 Interrogatory No. 52 from staff's second set of  
15 interrogatories.

16 MR. COX: Thank you.

17 BY MR. MARSHALL:

18 Q And you sponsored this interrogatory answer as  
19 well?

20 A Yes, that's correct.

21 Q And this asked about the methodologies  
22 identified by Florida Power & Light used when evaluating  
23 free-ridership?

24 A Yes.

25 Q And FPL did not consider other possible

1 **methods other than the two-year payback screening to**  
2 **address free-ridership?**

3 A Yes, that's correct, for a couple of reasons.

4 First was that this was guidance from the  
5 prior docket. And second was that this was agreed upon  
6 in staff's informal meetings last year as the method to  
7 use.

8 And then of course, we did do the sensitivity  
9 analysis around it, with one and three kind of further  
10 cementing that this was the purpose of doing the  
11 two-year payback. So there was no need to do anything  
12 different, or consider anything different in this  
13 docket.

14 Q And if I could direct your attention to FPL  
15 response so SACE Interrogatory Nos. 123, 125 and then  
16 127 through 31 from SACE's fifth set of interrogatories.  
17 This is going to be No. 272?

18 CHAIRMAN GRAHAM: Correct.

19 (Whereupon, Exhibit No. 272 was marked for  
20 identification.)

21 BY MR. MARSHALL:

22 Q Now, Mr. Feldman sponsored the answers to  
23 these interrogatories, is that right?

24 A Scanning through them, it looks like that  
25 would have been something he did respond to.

1           Q     And so from the witnesses here today, who  
2 would be the best person to answer -- from Florida Power  
3 & Light, who would be the best person to answer  
4 questions about these interrogatories?

5           A     I think probably Dr. Sim.

6           Q     Okay. In which case, I would just ask that  
7 you leave that there for Dr. Sim.

8           A     Will do.

9           MR. MARSHALL: And so we will hold off on  
10 Exhibit 272 to that time, and that is all my  
11 questions.

12           Thank you, Mr. Koch.

13           CHAIRMAN GRAHAM: Okay. I assume none of the  
14 utilities have questions for this witness?

15           MR. S. WRIGHT: Correct.

16           CHAIRMAN GRAHAM: Okay. Staff?

17           MS. DUVAL: Thank you, Mr. Chairman.

18                                   EXAMINATION

19 BY MS. DUVAL:

20           Q     Good afternoon, Mr. Koch. Margo DuVal on  
21 behalf of staff.

22                                   How are you today?

23           A     Good. Thank you. Good afternoon.

24           Q     Staff also passed out a few excerpts from the  
25 comprehensive exhibit list and a couple of other

1 documents. Did you receive those?

2 A Yes, I have some documents here.

3 Q Okay. So the one that should be on the top is  
4 actually an excerpt from your testimony. If you could  
5 refer to that one. It's pages 11 and 33 of your  
6 testimony?

7 A I have that.

8 Q In looking at those, FPL's 2014 summer goals  
9 were 526.1 megawatts, correct?

10 A That's correct. I don't see it on this page,  
11 but that is correct.

12 Q I believe that's on page 33 --

13 A Oh, sorry.

14 Q -- about line 21.

15 A Yes, I see that.

16 Q So then looking back at page 11, in your  
17 testimony, you provide that FPL's current proposed  
18 summer goals in this proceeding are 352 megawatts,  
19 correct?

20 A Yes, that's correct.

21 Q Subject to check, would you agree that the  
22 2019 summer goals are approximately 33 percent, or  
23 one-third less than the 2014 goals?

24 A Subject to check, yes, I would agree with  
25 that.

1           And, you know, I would say that the one thing  
2     that, you know, sort of makes a convenient sound bite,  
3     but in reality, every one of these goals docket is a  
4     do-over. So whatever assumptions were used five years  
5     ago, the purpose of this docket is now to say what are  
6     the current assumptions. And they can come up with  
7     higher numbers, lower numbers, same numbers, but it  
8     won't have anything to do with where it was before. It  
9     has to do with what the current assumptions determine  
10    they are now.

11           And so in this case, it happens to be lower  
12    because the costs for FPL are significantly lower than  
13    they were five years ago.

14           **Q     Thank you.**

15           **Okay. Moving on to the second handout that**  
16    **you should have. This is an excerpt from the final**  
17    **order approving the numeric conservation goals from**  
18    **2014.**

19           A     Yes, I have that.

20           **Q     Okay. And we are looking at specifically**  
21    **pages 40 and 43.**

22                   **Referencing those, FPL's 2014 winter goals**  
23    **were 324.2 megawatts, correct?**

24           A     Excuse me, could you tell me where it is? I  
25    am not seeing that number.

1 Q It's the sum of the Commission approved winter  
2 peak demand goal on page 40, at the end of that line in  
3 the chart where it says 166.

4 A Yes, okay. I see that now.

5 Q And then on the next page, it would be in the  
6 middle table, winter peak demand, FPL's line and  
7 Commission approved 158.2?

8 A Yes, I see that now.

9 Q Okay. So you would agree, subject to check,  
10 that the sum of those would be 324.2 megawatts?

11 A Yes.

12 Q And in your testimony, you provide that FPL's  
13 proposed winter goals in this proceeding are  
14 259 megawatts?

15 A Yes, that's correct.

16 Q So subject to check again, would you agree  
17 that the 2019 winter goals are approximately 20 percent,  
18 or one-fifth less than the 2014 goals?

19 A Subject to check, yes.

20 Q Thank you.

21 Okay. Looking back at that 2014 order, the --  
22 FPL's 2014 annual energy goals were 526.3 gigawatt  
23 hours, is that correct, subject to check, looking at the  
24 numbers provided in those two tables?

25 A 526 sounds correct to me, yes, for gigawatt

1 hours.

2 Q Thank you.

3 And FPL's proposed annual energy goals in this  
4 proceeding are 1,000 megawatt hours, or one gigawatt  
5 hours was previously stated, right?

6 A Yes, that's correct.

7 Q And subject to check, would you agree that the  
8 2019 proposed annual energy goals are approximately 99.8  
9 percent less than the 2014 goals?

10 A Subject to check, yes.

11 Q I would like to now refer you to the last  
12 handout in that stack. So we are going to skip over the  
13 next one and move to the last one, which is an excerpt  
14 from staff's hearing Exhibit No. 101. And these are the  
15 responses specifically to 52 -- Interrogatories 52A and  
16 52B.

17 A I have that.

18 Q Can you please explain why FPL believes that  
19 the two-year payback screening is the best method to  
20 address free-ridership?

21 A Well, I think the two-year payback screening  
22 is -- it's not intended to be a bright line that says  
23 100 percent of customers that are faster than a two-year  
24 payback are automatically going to take things, nor does  
25 it say those above zero who are above a two-year payback

1 aren't.

2           It's a striking the balance type of an  
3 equation, and so -- which has, I think, served the  
4 Commission in Florida and the FPL well over the years.  
5 It is something that is used in -- you know, we had  
6 cited another jurisdiction that uses it for where they  
7 will pay on a business custom incentive program, and --  
8 but it's basically designed to say that you are  
9 obviously going to have increasing free-ridership as you  
10 head under two years, and this reflects, you know,  
11 accommodating the requirement in the rule that  
12 free-ridership be addressed.

13           **Q     Thank you, Mr. Koch.**

14           MS. DUVAL: Staff has no more questions.

15           CHAIRMAN GRAHAM: Thank you, staff.

16           Commissioners. Commissioner Clark. No.

17           Commissioner Brown.

18           COMMISSIONER BROWN: We are so -- we are so  
19 much alike.

20           Quick -- a couple of questions for you.

21           Throughout your testimony, you state that  
22 there have been significant market changes making  
23 the DSM benefits less competitive throughout since  
24 2014 you mentioned.

25           Other than seeing an increase in the codes and

1 standards and lower costs, what other significant  
2 market changes are you talking about?

3 THE WITNESS: Those are actually the two major  
4 market changes. It's the operational cost for FPL,  
5 which has gone down. And Dr. Sim describes that in  
6 a lot of detail, and I am not the expert on that.

7 But at any rate, it's those operational costs  
8 going down for operating the system, and then the  
9 fact that codes and standards keeps, you know,  
10 keeps sort of chewing the bottom out of what used  
11 to be more of the low hanging fruit in the energy  
12 efficiency side.

13 COMMISSIONER BROWN: And on page 13 of your  
14 testimony, you talk about that as the amount of  
15 participants that have been actively engaged in the  
16 program since the inception, I believe, of DSM.  
17 You state 7.6 million as of year-end 2018. Is it  
18 since the inception?

19 THE WITNESS: Yes. So -- I mean, I would say  
20 that that particular number includes programs that  
21 are currently offered, because it's more like  
22 10 million if you include programs that have been  
23 sequentially discontinued, but FPL has been doing  
24 this since even before FEECA existed.

25 COMMISSIONER BROWN: So have you seen an

1 increase -- even since the last goal setting  
2 proceeding 2014, you have seen an increase in  
3 participants?

4 THE WITNESS: Oh, excuse me, I think I must  
5 have misunderstood your question. Could you ask it  
6 again?

7 COMMISSIONER BROWN: Okay. So on page 13, if  
8 you want to read it, it just states -- you state as  
9 of year-end 2018, there have been 7.6 million  
10 participants in the current programs --

11 THE WITNESS: Right.

12 COMMISSIONER BROWN: -- current programs that  
13 have been also offered since late 20 -- pardon me,  
14 1980s and 1990s. I wanted to make sure if that is  
15 since the inception and it's just current programs  
16 first. And second, have you seen an increase,  
17 which I am assuming the answer is yes, but since  
18 the last goal proceeding in the number of  
19 participants?

20 THE WITNESS: Okay, yes.

21 So in answer to the first part of your  
22 question, and you can see it in my exhibit TRK-1  
23 where it came from. But these are cumulative  
24 participants since inception in the programs that  
25 are currently being offered. And, yes, each year,

1 we do have more participants that have, you know,  
2 participated in each program.

3 COMMISSIONER BROWN: Do you know what the rate  
4 is, the actual increase rate? I am particularly  
5 focused on since 2014, since those goals were set.

6 THE WITNESS: Actually, I do not, off the top  
7 of my head, know what that is. It's been -- we  
8 have been basically participating at a rate that  
9 allows us to meet our goals, you know, annually, so  
10 that's what -- that's what we focused on, but I  
11 don't know the --

12 COMMISSIONER BROWN: I'm curious to see --

13 THE WITNESS: Okay.

14 COMMISSIONER BROWN: -- if there has been an  
15 increase and what that percentage is since the last  
16 goal setting proceeding, so I will ask Dr. Sim when  
17 he comes up, and maybe he will have the answer.

18 So you only looked at a two-year payback  
19 period, but you note that there have been  
20 significant market changes since 2014. I am trying  
21 to understand why you didn't contemplate an  
22 alternative payback period given the fact that  
23 there are market changes since our last goal  
24 setting proceeding.

25 The two-year payback is not a red line, black

1 line rule for the Commission to consider. So I am  
2 just wondering why you didn't really analyze an  
3 alternative payback period, given your testimony of  
4 the significant market changes.

5 THE WITNESS: Right. So the -- the, you know,  
6 two-year payback gets applied on sort of a measure  
7 by measure basis. And so whether a customer  
8 chooses to participate in a -- or chooses to  
9 install a particular energy efficient alternative,  
10 their economics really aren't -- for most measures,  
11 those economics aren't changing from what it was in  
12 2014 for a participant to what it is today.

13 So if it costs \$100 then and it costs \$100  
14 today, and, you know, the payback is a year, then  
15 that's not -- that's not going to change things for  
16 how the analysis would be --

17 COMMISSIONER BROWN: But I think you are --

18 THE WITNESS: -- if that's answering your  
19 question.

20 COMMISSIONER BROWN: Well, I think if you are  
21 seeing an increase in participants, a significant  
22 increase over the years, then it would be  
23 interesting to consider alternative payback given  
24 the interest by the customers in these programs  
25 that you are offering.

1 THE WITNESS: Oh, I see -- I see what you are  
2 driving at now.

3 Okay. So I don't think that the interest, per  
4 se, has grown in the market for these particular --  
5 particular energy efficiency technologies. I think  
6 it's kind of at a steady state for the majority of  
7 them. It isn't something -- you know, most of  
8 these are not -- they are mature products. They  
9 are not brand new emerging type of products. So  
10 it's sort of cranking along at the same level as it  
11 has been cranking along for a number of years.

12 COMMISSIONER BROWN: Talking about emerging  
13 and, I guess, next generation DSM programs, I think  
14 it should be noted that the proposed R&D pilot for  
15 the EDs is interesting. It's intriguing. I think  
16 it's spot on in trying to capture a next generation  
17 DSM program. Can you elaborate on any specifics  
18 that that R&D project would have on -- and have you  
19 done any analysis on it yet?

20 THE WITNESS: I would say that we've done  
21 preliminary thinking about, you know, how we would  
22 go about that. And what we would do is we would  
23 have -- this is residential is what it is, not --  
24 and what it would have is either a device attached  
25 that would allow for interruption at certain times,

1 similar to how we do our on-call program, or some  
2 chargers are starting to come out where they have  
3 onboard technology, so it would really depend on  
4 the time it went to market, you know, what was  
5 available.

6 But the idea would be that you could ensure  
7 that you wouldn't be driving peak demand, because  
8 it's focused on demand, same -- it's a demand  
9 response type of philosophy. So -- because there  
10 are, you know, still going to have to charge their  
11 battery, so it's a question of shifting the demand  
12 to a period where it would be -- where it would be  
13 less of an issue.

14 So we would have a set of customers who would  
15 be in a control group to make sure that we  
16 understood the patterns and how they were charging,  
17 and then a set of customers who would be in the  
18 treatment group. And then we would, you know, do  
19 those interruptions and match one against the other  
20 to see -- to see what the affects were.

21 COMMISSIONER BROWN: Are there any other  
22 NexGen DSM programs that FPL is contemplating?

23 THE WITNESS: I think the things that we are  
24 looking at are largely around mobile and stationary  
25 storage. I mean, those are sort of the new things

1           that are starting to come out. There is some new  
2           products there, and obviously they are still quite  
3           sense expensive, but it's the type of thing that we  
4           could either be experienced because customer would  
5           be putting them in on their own, you know, very  
6           early adopters; or they are things like this, where  
7           we do expect that there is going to be a descent  
8           penetration, I think -- what were we saying? 460  
9           megawatts of the, you know, EV load by -- on peak  
10          EV load by 2029. So things like that are, you  
11          know, coming. So those are the areas I think are  
12          the potential for the things that would be -- would  
13          be available.

14                 COMMISSIONER BROWN: So then would you look at  
15          a different payback period for those type of  
16          projects -- or pardon me, programs?

17                 THE WITNESS: I think what we would have to do  
18          is when we did the research on them, we would have  
19          to see, you know, how does it really work? What is  
20          it looking like? And then we would have to look at  
21          the economics. Because, you know, at the end of  
22          the day -- and this is sort of the reason we are  
23          kind of a staunch defender of RIM, is that  
24          everybody is going to end up paying for this. I  
25          mean, the general body of customers pays for the

1 activities we do through the ECCR clause, and that  
2 includes both the wealthy and the non-wealthy, and  
3 so, you know, we want to make sure that we don't  
4 unnecessarily drive up costs because that's really,  
5 you know, the bread and butter.

6 COMMISSIONER BROWN: Absolutely. And just  
7 last question.

8 In your testimony, you also talk about -- I  
9 think you referencing Dr. Sim, his testimony about  
10 DSM benefits have declined by more than 33 percent  
11 in the five-year period since we last set our  
12 goals.

13 I would love to understand that number and how  
14 you can quantify that, how benefits have dropped  
15 over that time period. Do you have the answer or  
16 does Dr. Sim?

17 THE WITNESS: Dr. Sim. It's, in fact, a piece  
18 of his analysis, so he -- I am sure he would be  
19 happy to walk you through that.

20 COMMISSIONER BROWN: Okay. Thank you so much.

21 THE WITNESS: Sure.

22 CHAIRMAN GRAHAM: Mr. Clark.

23 COMMISSIONER CLARK: Thank you, Mr. Chairman.

24 Just one quick question.

25 Have you considered or looked at any realtime

1 pricing strategies as part of DSM?

2 THE WITNESS: Actually, back in the '90s, I  
3 was involved in realtime pricing. We had that for  
4 a few years in the company for large CI customers,  
5 and eventually, the adoption sort of withered with  
6 interest, you know, from the customer standpoint.

7 But, you know, I am -- I am not familiar now  
8 with how variable our marginal prices are on the  
9 system. That would probably be something you would  
10 ask Dr. Sim about, but a lot of them have been,  
11 over the years, have been fairly flat, so that  
12 makes it more challenging for -- on FPL's system I  
13 will say. So that makes it more challenging to  
14 have that price differential versus your baseline  
15 or versus, you know, some other nature that would  
16 allow you to, a customer, really, to, you know,  
17 take advantage of it to their benefit.

18 COMMISSIONER CLARK: I guess, and that kind of  
19 goes to my second line of questions. We keep  
20 talking about cost shifting and looking at the  
21 different classifications of customers.

22 Have you considered, as part of your analysis,  
23 breaking the customer classifications down into  
24 other subsets as, for example, residential --  
25 typical residential customers paying a normal

1 residential, braking those down into different  
2 types of homeowner structures, or different types  
3 of classes, so nonresidential that are paying the  
4 same rates, breaking those down, and looking at,  
5 for example, a customer that simply had a well, or  
6 a pump, or some small item that's on the system  
7 requiring the same amount of infrastructure as a  
8 house that's going to be generating revenue for the  
9 company, have you considered breaking those  
10 classifications down as part your strategy and  
11 analysis?

12 THE WITNESS: I don't think exactly as the  
13 example you have described is. I mean, we did  
14 break the groups of customers for residential, for  
15 example, down into single family, multi-family and  
16 mobile or manufactured home, we broke them into  
17 those pieces. And then we had, depending upon the  
18 measure, it had different amounts of demand and  
19 energy associated with it.

20 So there was -- there was that part of the  
21 analysis that was performed for the measures that  
22 were identified, but I -- I don't think to the  
23 level you were just describing.

24 COMMISSIONER CLARK: So on that note, you kind  
25 of hit an area that interests me because you said

1           that you broke manufactured housing down.

2           Did you see any significant potential things  
3           that can be done in the manufactured home industry  
4           that would have a more positive effect on DSM  
5           programs than just, say, standard stick-built  
6           residential programs? Have you considered  
7           designing programs that were specifically for  
8           manufactured housing?

9           THE WITNESS: And that has been one of the  
10          things that we've looked at in the past as we have  
11          done program design. The -- at the moment, though,  
12          none of the -- because of the cost issue that we  
13          talked about before, the avoided cost issue, none  
14          of those types of measures that could have passed  
15          through, whether they be for manufactured home or  
16          be for other types of dwelling, you know, none of  
17          those have made it through, so they wouldn't be in  
18          a program that would be, you know, part of the 2020  
19          DSM plan.

20          COMMISSIONER CLARK: So have you evaluated the  
21          contribution to coincident peak just on  
22          manufactured homes as opposed to standard  
23          stick-built residential?

24          THE WITNESS: We evaluated it from, you know,  
25          on a per measure basis.

1 COMMISSIONER CLARK: On a per measure.

2 THE WITNESS: Yes.

3 COMMISSIONER CLARK: Okay. Thank you, Mr.  
4 Chairman.

5 CHAIRMAN GRAHAM: Mr. Koch, I have a couple of  
6 questions.

7 Your testimony says that you are a computer  
8 science major, correct, or was?

9 THE WITNESS: Back in the day, I did a little  
10 programming, yes.

11 CHAIRMAN GRAHAM: Well, let me tell you a  
12 little story. I grew up, and I had one of those  
13 stepfathers that would, he would pulled into the  
14 driveway, the first thing he would do is go check  
15 the meter, and he would see the meter spinning  
16 around, and he would walk in the house and start  
17 yelling and screaming, what the hell is on? Turn  
18 this off. Turn this off. Turn that off. And  
19 that's his way of doing energy efficiency.

20 My question, now that we have smart meters and  
21 more and more smart meters, I am one of those guys  
22 that I think if you -- if you had something on the  
23 refrigerator that showed, like, a needle how much  
24 energy you are using, you know, instantaneously, or  
25 if you just had a counter showing how much you had,

1 or even now, everybody has got little Fitbit watch,  
2 and they say, you know, I got to get another 1,000  
3 steps in, or another 10,000 steps in. Is there any  
4 thought at all about tying the smart meters to some  
5 sort of terminology along that line? Because I  
6 think if people, in realtime, see the energy they  
7 are use being, they will sit back and think to  
8 themselves, you know, I left the ceiling fan back  
9 on the back bedroom, or I left this running, or I  
10 did this, but any thought to that on an educational  
11 basis when it comes to energy efficiency?

12 THE WITNESS: Actually, yes. We have  
13 implemented been -- we have implemented a new  
14 platform, and I will just speak about the  
15 residential because you gave that example. But it  
16 relies upon our survey now, our energy survey, and  
17 we have two tools. One that you can just go on  
18 your dashboard and see how things are functioning  
19 and predict your next month's bill, et cetera, that  
20 sort of stuff.

21 But the other one, the energy analyzer, which  
22 is our -- I think the term here is audit, but we  
23 call them surveys. But that device relies upon  
24 customers' AMI data, it disaggregates their bill  
25 into the end-use appliance using some AI

1           technology, and will tell you what you are using,  
2           what's driving the most, and then it specifically  
3           provides you information in terms of what you can  
4           do to sit there and affect those particular things.  
5           It will be -- it's a unique signature to your  
6           property based on your AMI data.

7                       Now, it's an on-line type of thing. It isn't  
8           a wearable type of product, but you can get access  
9           to it on smart devices.

10                      CHAIRMAN GRAHAM: Well, now, Florida Power &  
11           Light has got an app, correct, that does more like  
12           hurricane preparedness, and what's on and what's  
13           off, that sort of thing?

14                      THE WITNESS: Yes, that's correct.

15                      CHAIRMAN GRAHAM: Have we thought about  
16           putting that -- tying that to the app somehow?

17                      THE WITNESS: I believe it is tied to the --  
18           it's a different app, but I believe it is tied to  
19           that app right now. I know for sure the dashboard  
20           is on there, and I believe you can get to the  
21           survey platform as well through that same --  
22           through that same method.

23                      CHAIRMAN GRAHAM: Not having Florida Power &  
24           Light, I don't have access to that app.

25                      Okay. Redirect?



1           You were also asked a question -- I am going  
2 to switch gears to a different topic. I believe it was  
3 from staff Exhibit 100, and it was SACE's and LULAC's  
4 counsel, Earthjustice asking you some questions about  
5 staff Exhibit 100, FPL response to staff Interrogatory  
6 No. 9. And he was asking about the administrative costs  
7 for various measures, residential measures.

8           A     Yes, I remember that.

9           Q     And I just want to make sure I understood your  
10 answer on that as well.

11           So he was asking you questions, asking you  
12 about the installation costs, as I recall; is that  
13 right, the installation costs for these particular  
14 measures?

15          A     Yes, he mentioned that.

16          Q     But you were making it clear on that exhibit  
17 that that number -- the numbers he was referencing, I  
18 think he referenced \$29 and \$19 specifically. Are those  
19 numbers installation costs?

20          A     No, those are -- those would be FPL program  
21 management costs, or program operation costs.

22          Q     Okay. I think I just have one more question  
23 for you, Mr. Koch.

24                 You were asked a question about comparing  
25 FPL's goals from 2014 to 2019. Do you recall a question

1 on that topic?

2 A Yes.

3 Q And I think you were speaking specifically  
4 about the summer megawatt goal.

5 A Okay.

6 Q And you basically -- you indicated, I think --  
7 let me just ask it this way: Is it proper to compare  
8 goals between the 2014 goals and the current goals as  
9 FPL or any party thinks about the goals?

10 A No, I don't think so, because each set of  
11 information is predicated on a totally different set of  
12 assumptions. I mean, no more than you would expect me  
13 to be able to run the same way I ran in my thirties.  
14 Unfortunately, life has changed. So, you know, it's the  
15 same sort of situation, where the underlying information  
16 is a totally different set of circumstances, so  
17 numbers -- it's, again, a pure do-over.

18 Q And that would apply whether we are talking  
19 about the goal for summer megawatts, winter megawatts or  
20 the energy efficiency, the gigawatt hours, energy  
21 savings?

22 A Yes, that's correct; because it's really a  
23 matters whether a measure clears the screening, economic  
24 screen or not, and whatever megawatts or gigawatt hours  
25 is just a pure outfall of that.

1           **Q     Thank you, Mr. Koch.**

2           MR. COX:   No further questions.

3           CHAIRMAN GRAHAM:   Okay.   Exhibits, SACE.

4           MR. MARSHALL:   We move to enter into the  
5           record exhibits that were marked 265 through 271,  
6           and we would just ask that the parties hold on to  
7           what was mark as 272 for Dr. Sim's testimony as  
8           well as the, what was also included next to that,  
9           the excerpt for FPL's 10-year site plan.

10          MR. COX:   I didn't follow about the 10-year  
11          site plan, what was said?

12          CHAIRMAN GRAHAM:   There was an extra that he  
13          sent out but we haven't labeled, so we are not  
14          entering it at the time, just for him to hold on to  
15          it.

16          MR. COX:   Oh, I see.   Thank you.

17          CHAIRMAN GRAHAM:   But did you have an  
18          objection about 265 through 272?

19          MR. MARSHALL:   Just 271, because 272 we are  
20          going to hold on for Dr. Sim.

21          MR. COX:   No, all of the exhibits that he has  
22          referenced today I believe were excerpts from the  
23          staff exhibits on the comprehensive exhibit list,  
24          is that correct?

25          MR. MARSHALL:   No, there were a few ones that

1           were new, like the PODs to the --

2           MR. COX: But they were responses from FPL's?

3           MR. MARSHALL: Yes.

4           MR. COX: Yes. We have no objections to  
5 those.

6           And I understand that the -- staff, you  
7 admitted all of the exhibits to Mr. Koch's  
8 testimony already at the beginning of the hearing?

9           CHAIRMAN GRAHAM: Yes.

10          MR. COX: Thank you.

11          MS. DUVAL: Actually, if I could clarify that  
12 one point. Staff only entered into staff's hearing  
13 exhibits at the beginning of the proceeding.

14          CHAIRMAN GRAHAM: We have not entered -- we  
15 have not entered Exhibits 2, 3, 4 and 5 for Mr.  
16 Koch yet.

17          MR. COX: I see. We would ask admission of  
18 those exhibits then. Thank you.

19          CHAIRMAN GRAHAM: Okay. Hold on a second.  
20 Let's finish with him.

21          So 265 through 271, you have no objections?

22          MR. COX: No objections.

23          CHAIRMAN GRAHAM: So we will enter those into  
24 the record.

25          MR. MARSHALL: Thank you.



1 sworn to speak the truth, the whole truth, and nothing  
2 but the truth, was examined and testified as follows:

3 EXAMINATION

4 BY MR. GUYTON:

5 Q Mr. Whitley, have you previously been sworn?

6 CHAIRMAN GRAHAM: Microphone.

7 THE WITNESS: Yes, I have.

8 BY MR. BUTLER:

9 Q Would you please state your name and business  
10 address?

11 A Yes, Andrew Whitley, 700 Universe Boulevard,  
12 Juno Beach, Florida.

13 Q And Mr. Whitley, who is your employer?

14 A Florida Power & Light.

15 Q And what's your position?

16 A My position is Engineering Supervisor with the  
17 Resource Planning -- or I am sorry, the Integrated  
18 Resource Planning Group.

19 Q And did Florida Power & Light Company prefile  
20 42 typewritten pages of your direct testimony in this  
21 docket on April 12th, 2019?

22 A Yes, they did.

23 Q And if I were to ask you today the same  
24 questions as appear in your prefiled direct testimony,  
25 would your answers be the same?

1           A     Yes, they would.

2                   MR. GUYTON:  Mr. Chairman, we would ask that  
3           Mr. Whitley's direct testimony be inserted into the  
4           record.

5                   CHAIRMAN GRAHAM:  We will enter Mr. Whitley's  
6           direct testimony into the record as though read.

7                   (Whereupon, prefiled testimony was inserted.)

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## I. INTRODUCTION

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2

3 **Q. Please state your name and business address.**

4 A. My name is Andrew W. Whitley, and my business address is 700 Universe  
5 Blvd., Juno Beach, Florida 33408.

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

7 A. I am employed by Florida Power & Light Company (FPL) as Principal  
8 Engineer in the Integrated Resource Planning department of FPL's Finance  
9 Business Unit.

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

11 A. I conduct resource planning and production cost analyses that examine the  
12 timing and magnitude of FPL's resource needs as well as the economics of  
13 how to meet those needs.

14 **Q. Please describe your educational background and professional  
15 experience.**

16 A. I graduated from Lehigh University in 2004 with a Bachelor of Science in  
17 Mechanical Engineering. I joined FPL in 2004 as part of FPL's Distribution  
18 Business Unit, and performed various engineering tasks related to providing  
19 new service as well as maintaining the reliability of existing services to FPL's  
20 customers. In 2007, I joined FPL's Resource Assessment and Planning group  
21 (now referred to as the Integrated Resource Planning group). During that  
22 time, I have been involved in a variety of resource planning projects for FPL.  
23 Starting in 2011, I began regularly updating FPL's cost-effectiveness models  
24 and then evaluating Demand Side Management (DSM) measures and

1 programs. In 2013 and 2014, I was the principal analyst involved in  
2 performing FPL's analysis in support of its 2014 DSM Goals. As part of this  
3 analysis, I evaluated FPL's resource needs that could be met with DSM,  
4 conducted cost-effectiveness screening of DSM measures, and performed rate  
5 impact analyses on FPL's proposed Goals.

6  
7 After my work on the previous DSM Goals, I was involved in performing  
8 analysis in support of both the Okeechobee Clean Energy Center (in 2015)  
9 and Dania Beach Clean Energy Center Need Determination (in 2017-2018)  
10 filings.

11 **Q. Are you sponsoring any exhibits in this case?**

12 A. Yes. I am sponsoring Exhibits AWW-1 through AWW-14 which are attached  
13 to my testimony:

- 14 ■ Exhibit AWW-1: FPL's Resource Planning Process as Applied to  
15 DSM Goal-Setting;
- 16 ■ Exhibit AWW-2: Economic Elements Accounted for in DSM  
17 Preliminary Screening Tests: Benefits and Costs;
- 18 ■ Exhibit AWW-3: Summary Results of Preliminary Economic  
19 Screening of Individual DSM Measures (w/o and w/CO<sub>2</sub> Costs);
- 20 ■ Exhibit AWW-4: Summary Results of Preliminary Economic  
21 Screening of Individual DSM Measures: Sensitivity Cases;
- 22 ■ Exhibit AWW-5: Forecasted Fuel and Environmental Compliance  
23 Costs;

- 1                   ▪ Exhibit AWW-6: Projection of FPL’s Resource Needs for 2020-  
2                   2031 with No Incremental DSM Signups After 2019;
- 3                   ▪ Exhibit AWW-7: Comparison of DSM Achievable Potential  
4                   Summer MW Values with FPL’s Projected Summer Resource  
5                   Needs (Assuming the Resource Needs are Met Solely by DSM);
- 6                   ▪ Exhibit AWW-8: Overview of Supply Only and With DSM  
7                   Resource Plans;
- 8                   ▪ Exhibit AWW-9: Example of Levelized System Average Electric  
9                   Rate Calculation for the RIM Resource Plan;
- 10                  ▪ Exhibit AWW-10: Comparison of the Resource Plans: Economic  
11                  Analyses Results and Consequences;
- 12                  ▪ Exhibit AWW-11: Additional Cost Needed to be Added to RIM  
13                  Plan to Increase its Levelized System Average Electric Rate to  
14                  That of the TRC Plan;
- 15                  ▪ Exhibit AWW-12: Comparison of the Resource Plans: Projection  
16                  of System Average Electric Rates and Customer Bills (Assuming  
17                  1,200 kWh Usage);
- 18                  ▪ Exhibit AWW-13: Comparison of the Resource Plans: Projection  
19                  of System Emissions; and
- 20                  ▪ Exhibit AWW-14: Comparison of the Resource Plans: Projection  
21                  of System Oil and Natural Gas Usage.

22           **Q.     What is the scope of your testimony?**

23           A.     The scope of my testimony is as follows:

- 1           1. Provide an overview of FPL's resource planning process and DSM Goals  
2           evaluation process;
- 3           2. Review the relevant assumptions used in FPL's resource planning process;
- 4           3. Present the results of the Economic Potential preliminary screening  
5           analysis for all of the DSM Goals measures which served as inputs for the  
6           Achievable Potential work discussed in FPL witness Thomas R. Koch's  
7           testimony; and
- 8           4. Review the resource plans that are based on the results of the Achievable  
9           Potential analyses and how these resource plans meet FPL's resource  
10          needs and how they compare on economic and non-economic factors.

11          **Q. Please summarize your testimony.**

12          A. Utilizing FPL's resource planning process and the latest forecasts,  
13          assumptions and cost estimates, FPL's customers would experience the lowest  
14          electric rates with proposed DSM Goals that are based upon the application of  
15          the Rate Impact Measure (RIM) and Participant tests, plus the years-to-  
16          payback screening for cost-effectiveness. Those proposed DSM Goals are  
17          352 megawatts (MW) Summer demand, 259 MW Winter demand and 1,023  
18          megawatt-hours (MWh) energy reduction for the period 2020 through 2029.

19          In my testimony, I cover:

- 20          - FPL's resource planning process, how it applies to DSM options, and  
21          how it treats DSM and supply options equally;
- 22          - The various tests used in the preliminary cost-effectiveness screening  
23          and the results of this screening;

- 1 - Why the application of the RIM test, in conjunction with the  
2 Participant test, is most appropriate when setting DSM Goals;
- 3 - How the projected Achievable Potential of DSM compares to FPL's  
4 resource needs in the 2020-2029 timeframe;
- 5 - FPL's proposed Supply Only Resource Plan, With DSM Resource  
6 Plans, and how all of these plans compare on both economic and non-  
7 economic bases; and
- 8 - How the final resource plan based on FPL's proposed DSM Goals  
9 continues to provide reliable electric service for FPL's customers at  
10 low electric rates.

11

## 12 II. FPL'S RESOURCE PLANNING PROCESS

13

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

16 A. Yes. Beginning in 2018, and continuing into the first quarter of 2019, FPL  
17 undertook a months-long process to determine its resource plan for use in the  
18 2019 DSM Goals filing, as well as all other 2019 analyses, including the 2019  
19 Ten Year Site Plan (Site Plan). The assumptions used in FPL's planning  
20 process were developed in late-2018 and early 2019 and accurately represent a  
21 current projection of FPL's system.

1       **Q.     Why did FPL develop its proposed DSM Goals based upon its most**  
2       **recent planning process?**

3       A.     There are two important reasons FPL used its most recent planning process to  
4       develop its DSM goals. First, Rule 25-17.0021 F.A.C., subsection (3) states  
5       in part that: “In a proceeding to establish or modify goals, each utility shall  
6       propose numerical goals for the ten-year period..., *based upon the utility’s*  
7       *most recent planning process...*” (emphasis added) Accordingly, FPL based  
8       its proposed goals upon its most recent planning process to comply with the  
9       Commission’s DSM Goals rule. Second, it is important for a utility to use its  
10      own resource planning process while setting DSM Goals or performing the  
11      analysis of any resource option, because each utility has its own specific  
12      characteristics that can alter the timing and magnitude of its resource needs,  
13      and can influence the cost-effectiveness of resource options.

14      **Q.     What are the objectives of FPL’s integrated resource planning process?**

15      A.     There are 3 main goals of FPL’s resource planning process:

- 16           1.     Identify the timing of FPL’s resource needs. The timing of future  
17           resource needs is largely determined by reliability standards (such as  
18           reserve margins and loss-of-load probability requirements).
- 19           2.     Identify the magnitude of these resource needs, *i.e.*, how many MW of  
20           capacity are needed to satisfy reliability criteria.
- 21           3.     Identify the type of resources, either supply-side or demand-side, that  
22           can meet these capacity needs. This selection is determined by the

1 option that is projected to result in the lowest electric rates for FPL's  
2 customers.

3 **Q. When selecting supply-side or demand-side resource options to meet its**  
4 **reliability criteria, does FPL select these resources on the basis of lowest**  
5 **cumulative present value of revenue requirements (CPVRR)?**

6 A. No. When evaluating among supply-side and demand-side resource  
7 alternatives, FPL bases its evaluation on the lowest system average electric  
8 rates. If, for example, two resource plans satisfy all of FPL's reliability  
9 requirements, the better plan for all of FPL's customers is the plan that results  
10 in the lowest Levelized System Average Electric Rate. This calculation is  
11 performed by dividing a utility's annual revenue requirements for that year by  
12 the utility's Net Electric Load (NEL) for that year. This same calculation is  
13 performed for each year of the analysis, then the results for all years are  
14 summed on a present value basis. This cumulative present value is then  
15 converted into a Levelized System Average Electric Rate for the period of the  
16 analysis.

17  
18 Note that if one were comparing two resource plans that have the same level  
19 of DSM, the two plans will have the same NEL. Therefore, the plan with the  
20 lower CPVRR in that scenario also would have the lower Levelized System  
21 Average Electric Rate. However, in an evaluation of varying DSM Goals  
22 portfolios, some plans will have different NELs, and, therefore, cannot be  
23 evaluated on CPVRR alone. Evaluating portfolios based on lowest electric

1 rates, instead of lowest CPVRR costs eliminates the possibility of selecting a  
2 portfolio of resource options that results in higher electric rates for all of  
3 FPL's customers than a competing portfolio. It also ensures there is no cross-  
4 subsidization between participating and non-participating customers.

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

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

- 8 - Task 1: Determine the magnitude and timing of FPL's new resource  
9 needs.
- 10 - Task 2: Identify the resource options and resource plans that are  
11 available to meet the determined magnitude and timing of FPL's  
12 resource needs (*i.e.*, identify the available competing options and  
13 resource plans).
- 14 - Task 3: Evaluate the competing resource options and resource plans in  
15 regards to system economics and non-economic factors.
- 16 - Task 4: Select a resource plan, as needed, to meet nearer-term options.

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

19 A. In a DSM Goals-setting docket, FPL freezes its DSM additions before the  
20 start of the next DSM Goals period. FPL assumes no incremental DSM, and,  
21 "starting from scratch," projects how much DSM should be implemented for  
22 the next ten years. FPL approaches that task by applying its IRP process in a

1           6-Step analysis approach. This same basic process was used by FPL in its  
2           prior DSM Goals-setting dockets.

3           **Q.    Please summarize the 6-Step resource planning process for DSM Goals-**  
4           **setting.**

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

7           Step 1: The Technical Potential for DSM is determined in which practical  
8           considerations of cost, market forces, the utility's resource needs,  
9           and other factors are all ignored. The end result of this step is a list  
10          of individual DSM measures that are theoretically available in a  
11          utility's service territory. Nexant witness Herndon describes in his  
12          direct testimony how Nexant developed the projected Technical  
13          Potential values for FPL that were used in the rest of FPL's analyses.

14          Step 2: Assuming no incremental DSM signups occur after December 31,  
15          2019, FPL's projected resource needs for 2020 through 2029 were  
16          determined. Two determinations of resource needs are made: one if  
17          the resource needs are theoretically met solely by Supply options and  
18          one if the resource needs are theoretically met solely by DSM  
19          options. These two projections are different because of FPL's 20%  
20          total reserve margin criterion. For example, if the resource need to  
21          be met solely by DSM options for a given year is 100 MW, the  
22          resource need to be met solely by Supply options for the same year is  
23           $100 \text{ MW} \times (1 + 0.2) = 120 \text{ MW}$ .

1           The results of these determinations are used in two ways. First, using  
2           the projected resource needs, if the needs are met solely by Supply  
3           options, a generation addition is selected for use in the preliminary  
4           economic screening of DSM measures (which occurs in Step 3).  
5           Second, these determinations are used later to create a “Supply  
6           Only” Resource Plan and two “With DSM” Resource Plans, which  
7           are all used for the detailed system economic and non-economic  
8           analyses that occur in Step 6.

9           Step 3: In this step, each individual DSM measure identified in the Step 1  
10           Technical Potential work is analyzed using a series of preliminary  
11           economic screening evaluations against a single Supply option that  
12           DSM could potentially avoid or defer. These screening evaluations  
13           divide into two separate paths depending on the primary screening  
14           test used in the analysis. One path utilizes both the RIM test and the  
15           Participant test, while the other path utilizes the Total Resource Cost  
16           (TRC) test and the Participant test. At the end of the screening for  
17           both of these paths, two more steps are conducted on both of the  
18           screening paths. First, the remaining measures are screened for free  
19           riders based on a “years-to-payback” test. Second, the maximum  
20           incentive that the utility can offer and preserve cost-effectiveness for  
21           each remaining DSM measure is calculated.

22           Step 4: The remaining DSM measures, and their accompanying maximum  
23           incentive levels, are then analyzed to determine the projected

1 Achievable Potential over the 2020 through 2029 time period.  
2 Again, this step is divided into two separate paths of analysis  
3 depending on the cost-effectiveness screening tests that are being  
4 applied. The resulting projection for each DSM measure represents  
5 the projected maximum annual signups for each year of the ten-year  
6 DSM Goals period. Cumulatively, the sum of these projected  
7 maximum annual signups for each DSM measure identifies how  
8 many MW of DSM resources are projected to be available each year  
9 to potentially meet FPL's projected annual resource needs. FPL  
10 witness Koch addresses the process of evaluating the Achievable  
11 Potential for the remaining DSM measures in his direct testimony.

12 Step 5: In this step, the projections of resource needs developed previously  
13 in Step 2 are used again in several ways. First, FPL uses the  
14 projection of resource needs, if the needs are met solely by Supply  
15 options, to develop a resource plan in which only Supply options are  
16 added. This resource plan is referred to as the "Supply Only"  
17 Resource Plan. Next, FPL compares the projected maximum annual  
18 DSM MW signups identified in Step 4 to the projected annual  
19 resource needs if those needs are met solely by DSM options. From  
20 this comparison, at least two "With DSM" Resource Plans are  
21 developed, one based on the RIM and Participant tests; another  
22 based on the TRC and Participant tests. These resource plans may  
23 consist solely of DSM measures, or a combination of DSM and

1                   Supply options, for the ten-year Goals-setting period. At the  
2                   conclusion of Step 5, the Supply Only and With DSM Resource  
3                   Plans have been developed for the more detailed system analyses.

4                   Step 6: These resource plans are analyzed from both economic and non-  
5                   economic perspectives. The best resource plan based on these  
6                   perspectives is identified, and the amount of incremental DSM  
7                   included in that plan is selected as FPL's proposed DSM Goals for  
8                   the 2020 - 2029 time period.

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

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

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

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

6

7       **III.    STEP 2 OF FPL’S PLANNING PROCESS: METHODS AND**  
8       **ASSUMPTIONS USED TO PROJECT FPL’S RESOURCE NEEDS**

9

10      **Q.     How does FPL determine its projected future resource needs?**

11      A.     FPL uses three reliability criteria in projecting its future resource needs. One  
12      criterion is a minimum total reserve margin of 20% for both Summer and  
13      Winter peak hours. The 20% total reserve margin criterion was approved by  
14      the Florida Public Service Commission (FPSC) in Order No. PSC-99-2507-S-  
15      EU issued in Docket No. 981890-EU.

16

17      The second reliability criterion used by FPL is a Loss-of-Load-Probability  
18      (LOLP) criterion. LOLP is a projection of how well an electric utility system  
19      may be able to meet its firm demand (*i.e.*, a measure of how often firm load  
20      may exceed available resources). In contrast to a reserve margin approach that  
21      looks at the one Summer peak hour and the one Winter peak hour, the LOLP  
22      approach looks at the peak hourly demand for each day of the year. The LOLP  
23      approach takes into consideration the probability of individual generators

1 being out-of-service due to scheduled maintenance or forced outages. LOLP is  
2 typically expressed in terms of “numbers of times per year” that the system  
3 firm demand could not be served. FPL’s LOLP criterion is a maximum of 0.1  
4 days per year. This LOLP criterion is commonly used throughout the electric  
5 utility industry.

6  
7 The third reliability criterion utilized by FPL is a minimum generation-only  
8 reserve margin (GRM) of 10%. The issue of having a sufficient generation  
9 component of the projected total reserve margin has been discussed annually  
10 in FPL’s Site Plan filings beginning in 2011, and the GRM was adopted by  
11 FPL as a reliability criterion beginning in 2014. The GRM must be applied  
12 only after evaluating the amount of DSM in a resource plan to determine  
13 whether the resource plan is too dependent upon DSM.

14 **Q. What forecasts and assumptions did FPL use in its 2019 planning**  
15 **process?**

16 A. Every year, FPL updates its forecasts as part of its IRP process and in support  
17 of filing its yearly Site Plan. In its 2019 resource planning work, including the  
18 analyses for this docket, FPL is using the following forecasts:

- 19 1. A forecast of fuel prices (natural gas, coal, and oil), dated December 3,  
20 2018;
- 21 2. A forecast of projected hourly load, dated December 13, 2018; and

1           3.     A forecast of carbon dioxide (CO<sub>2</sub>) compliance costs, dated December  
2                     6, 2018 (Use of this forecast in one of the sensitivity analyses is  
3                     explained later in my testimony).

4

5           As discussed in FPL's 2019 Site Plan, FPL made a number of assumptions  
6           regarding its resource mix that affected its projected resource needs in the  
7           2019 planning process. These assumptions include:

- 8           -     The retirement of Martin Units 1 & 2 in 2019;
- 9           -     The retirement of Manatee Units 1 & 2 by the end of 2021;
- 10          -     The addition of the Okeechobee Clean Energy Center in 2019;
- 11          -     The addition of the Dania Beach Clean Energy Center in 2022; and
- 12          -     The cumulative addition of approximately 8,053 MW (nameplate) of  
13               solar by the end of 2028 which is the last year addressed in the 2019  
14               Site Plan. (FPL is also projecting the addition of another 1,200 MW of  
15               solar in 2029.)

16       **Q.     Does the load forecast used in the analysis account for the projected**  
17       **energy efficiency impacts of Florida Building Code and federal**  
18       **equipment manufacturing standards (collectively, Codes and Standards)?**

19       A.     Yes. FPL witness Dr. Steven R. Sim explains further the projected magnitude  
20       and effects of energy efficiency resulting from Codes and Standards.

1       **Q.     From a resource planning perspective, does the energy efficiency impact**  
2       **of Codes and Standards differ at all from energy efficiency resulting from**  
3       **utility DSM programs?**

4       A.     No. Both types of energy efficiency act to reduce FPL's peak demand and  
5       energy on the customer side of the meter. One kW of peak demand reduction  
6       will avoid or defer new generation whether it comes from Codes and  
7       Standards or from a utility sponsored program. Likewise, the associated fuel  
8       and emission impacts from one kWh of energy reduction will be realized  
9       regardless of the impetus for that energy reduction.

10      **Q.     Once all of these forecasts and assumptions were developed, how did FPL**  
11      **develop the resource plans you discuss in this docket?**

12      A.     FPL developed these resource plans primarily using the EGEAS (Electric  
13      Generation Expansion Analysis System) planning model. The EGEAS model  
14      utilizes dynamic programming to conduct an extensive evaluation of all  
15      possible resource plans that can meet a utility's reliability requirements. FPL  
16      and the Commission have relied upon this model in numerous prior  
17      proceedings, and it was used to develop FPL's 2019 Site Plan. EGEAS  
18      incorporated a number of FPL forecasts and assumptions into its analysis  
19      including the following:

- 20      -       The 20% total Reserve Margin reliability criterion described earlier;
- 21      -       Forecasts for peak load, energy, fuel prices, and environmental
- 22              compliance costs;

- 1           -       The existing capabilities of the units on FPL's systems, and any  
2                    planned changes to those units; and
- 3           -       Projections of fixed and variable costs, and the operating  
4                    characteristics, of a variety of generation options to meet FPL's  
5                    resource needs in the future.

6           After incorporating all of these parameters, EGEAS evaluated hundreds of  
7           possible resource plans that met FPL's future resource needs using only  
8           generation or supply options. At the end of this evaluation, the resource plan  
9           with the lowest projected electric rate for FPL's customers was identified as  
10          FPL's Supply Only Plan. From this plan, FPL selected an avoided unit (a unit  
11          which can be avoided or deferred due to DSM) to be used in its preliminary  
12          cost-effectiveness screening.

13          **Q.    Based on this Supply Only Resource Plan, what Supply option was**  
14          **selected for use in the preliminary cost-effectiveness screening?**

15          A.    A 1,886 MW (Summer) combined cycle (CC) unit with a projected in-service  
16          year of 2026 was selected as the unit to be considered potentially avoidable  
17          for the preliminary screening work.

18          **Q.    Why did FPL select the 2026 CC unit as its avoided unit?**

19          A.    This unit was selected based on several factors. First, as part of the best  
20          Supply Only Resource Plan, it was one of the most economic generation  
21          additions available. Second, it was located far enough in the future to allow  
22          DSM additions a meaningful chance to potentially avoid or defer it. Finally,

1 selection of a fossil unit conforms to the Commission's direction that DSM  
2 avoid or defer fossil fuel usage.

3

4 **IV. STEP 3 OF FPL'S PLANNING PROCESS: OVERVIEW OF**  
5 **PRELIMINARY ECONOMIC SCREENING TESTS FOR DSM**

6

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

9 A. FPL utilized four DSM screening tests in these analyses: the Participant  
10 screening test, the RIM preliminary screening test, the TRC preliminary  
11 screening test, and the years-to-payback screening test using a two-year  
12 criterion. All four of these tests are designed to provide preliminary economic  
13 screening information regarding the individual DSM measures being  
14 evaluated. The intent of the Participant test is to determine if it makes  
15 economic sense for an individual customer to participate in a specific DSM  
16 measure. The intent of the RIM test is to measure the effect of a DSM  
17 measure on FPL's electric rates which impact both participants and non-  
18 participants. When paired with the Participant test, the RIM test accounts for  
19 the perspectives of all FPL's customers. The intent of the TRC test is  
20 supposedly to measure the cost of a DSM measure to the utility as a whole.  
21 However, the TRC test does not account for a measure's effect on the electric  
22 rates for a non-participating customer, and is therefore incomplete. The intent  
23 of the years-to-payback test is to address the "free rider" issue so that the

1 utility, and all of its customers, are not making incentive payments, and  
2 incurring administrative costs, for DSM measures that customers likely will  
3 install even without an incentive payment.

4 **Q. Is FPL accounting for any projected environmental compliance costs in**  
5 **the screening tests in the current analyses?**

6 A. Yes, but only for two types of emissions. FPL is accounting for projected  
7 compliance costs for sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) in both  
8 the RIM and TRC preliminary screening tests. However, consistent with the  
9 direction provided in the Order Establishing Procedure for this docket (Order  
10 No. PSC-2019-0062-PCO-EG), FPL is not accounting for projected CO<sub>2</sub>  
11 compliance costs in these screening tests in FPL's base case analyses. FPL is  
12 analyzing the impact of projected CO<sub>2</sub> compliance costs in sensitivity  
13 screening analyses. In order to indicate whether CO<sub>2</sub> costs are included in the  
14 screening analyses, I will use the terminology of "w/ CO<sub>2</sub>" and "w/o CO<sub>2</sub>" for  
15 the different analyses.

16 **Q. Have the four preliminary screening tests been used by FPL in prior**  
17 **DSM Goals filings?**

18 A. Yes, all four tests have been used in prior filings, with the RIM and  
19 Participant tests and a years-to-payback screen of two years having been used  
20 by FPL to propose DSM Goals.

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

3       A.     A summary of the costs and benefits considered by each test is provided in  
4       Exhibit AWW-2. The primary differences between these three tests result  
5       from the perspective that each test attempts to capture. The aptly-named  
6       Participant test focuses solely on the perspective of a participant in a DSM  
7       measure. This test compares the incremental costs associated with a DSM  
8       measure (mainly the initial cost of the measure compared to a baseline  
9       alternative) versus the benefits associated with that DSM measure (which  
10      primarily are the savings in the customer's bill from reduced energy usage).

11  
12      The TRC test is supposedly designed with the intent of comparing the "total"  
13      cost of a DSM measure against its benefits. Although the TRC test does  
14      accurately capture the benefits associated with adding a DSM measure, it has  
15      several failings when analyzing the cost of a DSM measure. First, the TRC  
16      test "double-counts" the participant costs, as they have already been  
17      accounted for when using the Participant test. Second, the TRC does not  
18      include incentive payments in its cost calculation. These costs represent a  
19      significant portion of the total cost of implementing a DSM measure by a  
20      utility. Third, and most importantly, the TRC does not include the impact of a  
21      DSM measure on a utility's electric rates. This impact comes from  
22      unrecovered revenue requirements resulting from a DSM measure's savings.  
23      All else equal, if these unrecovered revenue requirements are not offset by an

1 equal amount of system benefits, the measure will result in higher electric  
2 rates for all customers including non-participating customers. Gauging the  
3 effects on customers' electric rates is instrumental in determining how a DSM  
4 measure affects all utility customers.

5  
6 The RIM test also compares the costs and benefits of a DSM measure, but  
7 does so on a system-wide basis. The benefits calculation in the RIM test is  
8 identical to the benefits calculation in the TRC test. However, because the  
9 RIM test accounts for all of the costs and benefits passed on to a utility's  
10 entire base of customers, it is the only test that represents the effect of a DSM  
11 measure on both a participating customer and a non-participating customer.  
12 As a result of this perspective, the RIM test coupled with the Participant test is  
13 the appropriate method for setting DSM Goals, because it results in the lowest  
14 electric rates and also ensures that no cross-subsidization will occur from  
15 implementing DSM measures and programs.

16 **Q. What is the objective of the preliminary economic screening of individual**  
17 **DSM measures with the Commission's DSM cost-effectiveness tests that**  
18 **is carried out in Step 3 of FPL's process?**

19 A. The objective of the economic screening of DSM measures with the  
20 Commission's cost-effectiveness tests, Participant, TRC and RIM tests, is to  
21 identify all of the measures that are potentially cost-effective (in that their  
22 benefits are higher than their associated costs). These measures that are  
23 potentially cost-effective can be combined into a DSM portfolio(s) that meets

1           some or all FPL's projected resource needs. This portfolio (or portfolios) can  
2           then be compared on an economic basis to the Supply Only Plan established  
3           earlier.

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

6           A. The economic screening process begins when the Technical Potential study is  
7           complete. That study describes all the prospective individual DSM measures  
8           and their associated characteristics, such as life of measure, kW reduction, and  
9           kWh reduction. These measures are then screened to develop two DSM  
10          portfolios: a RIM portfolio that is comprised of all measures that pass the RIM  
11          and Participant cost-effectiveness tests and the years-to-payback screen; and a  
12          TRC portfolio that passes the TRC test, the Participant test and the years-to-  
13          payback screen. Based on the results of these screens, the passing measures  
14          have their maximum incentives determined.

15          **Q. Why does the screening process differ depending on the tests used for**  
16          **cost-effectiveness?**

17          A. Typically, the Commission has required the development of both a RIM  
18          portfolio and a TRC portfolio. The paths of the cost-effectiveness screening  
19          diverge depending on if the RIM or the TRC test is used as the primary  
20          determinant of cost-effectiveness. In both cases, there are four overall steps in  
21          the screening process. The details of these steps and how they differ from test  
22          to test are provided below:

1 Step 1: For the RIM path, the benefits of the measure are compared to the  
2 unrecovered revenue requirements. For the TRC path, the benefits of  
3 the measure are compared to the participants' incremental cost.

4 Step 2: For both the RIM and TRC paths, the benefits of the measure are  
5 compared to the administrative costs being added to the costs already  
6 accounted for in Step 1.

7 Step 3: For the RIM path only, the incentive payments needed for the  
8 measure to pass the Participant test are now accounted for.

9 Step 4: For both the RIM and TRC paths, any measures that do not pass the  
10 years-to-payback test for free riders are screened out.

11 **Q. You had mentioned that the final step of this screening process involves**  
12 **screening for free riders. Why does this screening for free riders occur?**

13 A. First, the Commission requires evaluation of free riders per Rule 25-17.0021,  
14 F.A.C. Second, screening for free riders ensures that utility incentives will not  
15 be provided to customers who would otherwise engage in a DSM measure  
16 with no incentive at all.

17 **Q. How does a years-to-payback screening test account for free riders?**

18 A. A years-to-payback screening with a two-year criterion assumes that a  
19 customer would engage in a DSM measure with no additional incentive if the  
20 economic payback for that measure was less than two years. This screening  
21 test recognizes that rational customers will act in their own economic interest  
22 and engage in DSM measures that reduce their energy consumption, if it is  
23 economic to do so even without incentives. This ensures that incentives (and

1           their associated impact to the electric rates of both participants and non-  
2           participants) will not be provided unnecessarily.

3           **Q    Has a years-to-payback screen of two years been used historically in**  
4           **Florida?**

5           A,    Yes, it has been used both by FPL in proposing DSM Goals, and the  
6           Commission in approving DSM goals. There have been five prior DSM goals  
7           proceedings pursuant to Rule 25-17.0021, F.A.C, a rule that requires the  
8           evaluation of free riders.

9  
10          In each of those prior DSM goals dockets, pursuant to Rule 25-17.0021,  
11          F.A.C., FPL and other utilities have used the two years-to-payback screen to  
12          address free riders. In most, if not all, of those proceedings, the utilities' use  
13          of the two years-to-payback screen to account for free riders has been  
14          contested.

15  
16          Most importantly, in each of those five previously contested DSM Goals  
17          proceedings, the Commission has approved goals that were developed using  
18          the two years-to-payback screen, in whole or in part. The Commission has  
19          been presented with alternatives to address free riders, and it has consistently  
20          approved DSM goals that used the two years-to-payback screening tool in  
21          each contested proceeding. This screen is battle-tested over twenty-five years  
22          of DSM hearings, and it should be used again in this proceeding.

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

2       A.     The results of the economic screening are provided in Exhibit AWW-3. In  
3             summary, out of the 6,560 measures that came out of the Technical Potential  
4             study, 38 passed the RIM and Participant tests and the two years-to-payback  
5             screen path, and 873 measures passed the much less rigorous TRC test, the  
6             Participant test, and the two years-to-payback screen path.

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

9       A.     Yes. As explained earlier, only the RIM test, in conjunction with the  
10            Participant test, fully captures all of the costs of a DSM measure when applied  
11            to the entirety of FPL's customers, both participating and non-participating;  
12            whereas the TRC test does not. Because the TRC test does not account for all  
13            costs impacts that are reflected in electric rates for all customers, it should be  
14            expected that more DSM measures survive the incomplete TRC screening  
15            path.

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

18       A.     Yes. Sensitivities were developed for High and Low forecasts of fuel prices,  
19            longer and shorter years-to-payback criteria, and inclusion of compliance  
20            costs for CO<sub>2</sub>. The results of these sensitivities can be seen in Exhibit AWW-  
21            4 (and the results with CO<sub>2</sub> are also presented in Exhibit AWW-3).

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

3       A.     FPL followed its usual practice in regards to the development of the High and  
4       Low fuel cost forecasts. A Medium fuel cost forecast was first developed.  
5       Then FPL adjusted the Medium fuel cost forecast upwards (for the High fuel  
6       cost forecast sensitivity) and downwards (for the Low fuel cost forecast  
7       sensitivity), by multiplying the annual cost values from the Medium fuel cost  
8       forecast by a factor of  $(1 + \text{the historical volatility in the 12-month forward}$   
9        $\text{price, one year ahead})$  for the High fuel cost forecast sensitivity, and by a  
10      factor of  $(1 - \text{the historical volatility of the 12-month forward price, one year}$   
11       $\text{ahead})$  for the Low fuel cost forecast sensitivity.

12  
13      In regards to the development of years-to-payback criterion sensitivity values,  
14      FPL added or subtracted one year to or from its base case two years-to-  
15      payback criterion, resulting in three years-to-payback, and one year-to-  
16      payback, sensitivity case criteria. FPL believes that this variation is sufficient  
17      to illustrate the sensitivity of the screening process to differences in the years-  
18      to-payback criterion.

19      **Q.     What fuel cost forecast is FPL basing its proposed DSM Goals on and**  
20      **why?**

21      A.     FPL is basing its 2019 DSM Goals on its Medium fuel forecast that is  
22      presented in Exhibit AWW-5. The Medium fuel forecast represents a logical

1 middle ground of fuel scenarios, and is consistent with the methodology used  
2 in all of FPL's recent filings before the Commission.

3 **Q. Please discuss the CO<sub>2</sub> compliance cost forecast values in Column (8) of**  
4 **Exhibit AWW-5.**

5 A. This forecast is a "composite" CO<sub>2</sub> cost forecast based on separate CO<sub>2</sub> cost  
6 forecasts from FPL and Duke Energy Florida (DEF). The creation of a  
7 composite CO<sub>2</sub> forecast allows DEF, FPL and Orlando Utilities Commission  
8 (OUC) (the only FEECA utilities performing a with CO<sub>2</sub> sensitivity analysis)  
9 to utilize a single CO<sub>2</sub> compliance cost forecast in the DSM Goals analyses as  
10 directed in Order No. PSC-2019-0062-PCO-EG. This composite forecast is a  
11 simple average developed by taking the annual CO<sub>2</sub> compliance cost values  
12 from FPL's and DEF's current CO<sub>2</sub> cost forecasts, summing these two values,  
13 and dividing by two. This created a new set of projected CO<sub>2</sub> cost values for  
14 each year for use in this docket.

15 **Q. Earlier you stated that at the conclusion of the cost-effectiveness**  
16 **screening, maximum incentives were calculated for each passing measure**  
17 **to forward on to the DSM Group. How were these maximum incentives**  
18 **calculated?**

19 A. Maximum incentives for measures that pass all four steps were calculated  
20 based on two parameters:

21 1. How much incentive can be offered and still allow the measure to pass  
22 the RIM and Participant tests?

1           2.     How much incentive can be offered and still allow the measure to pass  
2                     the years-to-payback test?

3

4           For the RIM path of cost-effectiveness testing, the smaller of these two  
5           incentives is the maximum incentive that could be offered. For the TRC path  
6           of cost-effectiveness testing, only the years-to-payback criterion was used to  
7           determine the maximum incentive.

8

9           For example, assume that a measure passes all four screening steps in the RIM  
10          path. The one-time payment that can be offered for this measure that still  
11          allows a RIM test greater than 1.005 is \$1,000. The one-time payment that  
12          can be offered for this measure that still allows it to pass the years-to-payback  
13          test is \$500. Based on these two values, the maximum incentive that could be  
14          offered is \$500 – offering a \$1,000 incentive would cause the measure to fail  
15          the years-to-payback test.

16       **Q.     How were these maximum incentives used in the overall DSM analysis?**

17       A.     The two sets (RIM path and TRC path) of passing measures and their  
18          associated maximum incentives are provided to the DSM group and used to  
19          calculate the Achievable Potential associated with the passing measures. FPL  
20          witness Koch describes this process in further detail in his testimony.



1 service means that it defers the need for future generation for a longer period.  
2 Therefore, Option B will avoid new capacity costs for more years than will  
3 Option A. Only by taking a multi-year resource plan approach to the  
4 evaluation can factors such as these for competing Supply options be captured  
5 and effectively compared.

6  
7 In the case of DSM options, there are similar somewhat contradicting impacts  
8 upon the utility system. For example, the MWh reduction effect of DSM  
9 lowers the amount of energy that must be served, but the MW reduction effect  
10 of DSM is designed to defer/avoid the addition of new generating units that, if  
11 added, may significantly improve the fuel efficiency of the utility system.  
12 Consequently, one aspect of DSM (MWh reduction) can decrease system fuel  
13 usage, but the other aspect of DSM (MW reduction) will avoid the addition of  
14 fuel-efficient new units that would have also lowered system fuel usage if the  
15 DSM options had not been implemented, thus increasing system fuel usage.  
16 Once again, only by taking a multi-year resource plan approach to the  
17 evaluation can these contradicting impacts of DSM upon the utility system be  
18 properly captured and compared.

19 **Q. Using these projected resource needs, what was the Supply Only**  
20 **Resource Plan developed by FPL?**

21 A. The Supply Only Plan includes all of the assumptions regarding generation  
22 additions and retirements from FPL's 2019 planning work and its 2019 Site  
23 Plan, including:

- 1 - The retirement of Martin Units 1 & 2 in 2019;
- 2 - The retirement of Manatee Units 1 & 2 by the end of 2021;
- 3 - The addition of the Okeechobee Clean Energy Center in 2019;
- 4 - The addition of the Dania Beach Clean Energy Center in 2022; and
- 5 - The cumulative addition of approximately 8,053 MW (nameplate) of
- 6 solar by the end of 2028 which is the last year addressed in the 2019
- 7 Site Plan. (FPL is also projecting the addition of another 1,200 MW of
- 8 solar in 2029.)

9 In addition to these assumptions, two 1,886 MW CC units are added. The first

10 unit goes into service in 2026 and the second unit goes into service in 2030.

11 **Q. What were the Achievable Potential values for DSM and how does this**

12 **DSM potential match up with FPL's projected resource needs?**

13 A. The results of the Achievable Potential evaluation, which are discussed in

14 detail in FPL witness Koch's direct testimony, were used as inputs for the

15 resource planning process. Exhibit AWW-7 presents the projected total annual

16 Achievable Potential Summer MW for DSM measures identified under either

17 the RIM screening path (Column 1) or the TRC screening path (Column 2).

18 These annual DSM potential Summer MW values are also compared to the

19 annual resource need projections, if the resource needs are met solely by DSM

20 options, which are carried over from Column 11 in Exhibit AWW-6 and

21 presented here in Column 3.

1       **Q.     Please describe the “With DSM” Resource Plans that were developed for**  
2       **further analyses.**

3       A.     Two resource plans were created based upon the two separate cost-  
4       effectiveness screening paths detailed earlier. A summary of these two plans,  
5       along with a summary of the Supply Only Plan, is presented in Exhibit AWW-  
6       8. The first of these plans is the RIM Resource Plan. This plan is based on the  
7       measures that passed both the RIM and Participant tests, as well as passing the  
8       two years-to-payback screening for free riders. This plan is very similar to the  
9       Supply Only Plan in terms of supply resource options added; however, the  
10      2030 CC unit was deferred to 2031 by the DSM additions.

11

12      The other “With DSM” plan, referred to as the TRC Resource Plan, utilizes  
13      measures that passed the TRC test and Participant test for cost-effectiveness  
14      and the two-year payback screening for free riders. This plan shares a similar  
15      pattern of resource additions with the RIM Resource Plan through the 2020-  
16      2029 timeframe, including a 2026 CC unit and deferring a 2030 CC unit to  
17      2031.



1 costs for existing generating units, existing transmission and distribution  
2 facilities, existing buildings, staff, etc.)

3  
4 Fifth, a projection of “other DSM costs” for the Supply Only and “With  
5 DSM” Resource Plans was developed. These “other DSM costs” include costs  
6 not directly tied to any individual DSM measure, but which will be incurred as  
7 part of a DSM portfolio. Examples of such costs include energy surveys and  
8 on-going bill credits to existing load management participants.

9  
10 Finally, the total annual MWh reductions by which DSM reduces the annual  
11 number of MWh over which FPL recovers its costs are determined.

12  
13 The above information is then used to calculate a Levelized System Average  
14 Electric Rate for each resource plan. This electric rate metric is used as the  
15 primary economic basis by which the resource plans that include differing  
16 amounts of DSM are evaluated.

17 **Q. How is the Levelized System Average Electric Rate for a resource plan**  
18 **calculated?**

19 A. Exhibit AWW-9 presents the calculation of the Levelized System Average  
20 Electric Rate for one of the resource plans, the RIM Resource Plan. The  
21 calculation consists of three basic steps. First, the projected annual revenue  
22 requirements and annual gigawatt-hours (GWh) served are used to calculate a  
23 projected system average electric rate for each year as shown in Column 9.

1 Second, each of these projected annual electric rates is converted to a present  
2 value, and these present values are summed in Column 10. Third, an annual  
3 electric rate value is developed in Column 11 that, when held constant in each  
4 year, with these values converted to a present value and summed, has an  
5 identical net present value sum in Column 12 to that of the present value sum  
6 in Column 10. This constant electric rate value is the Levelized System  
7 Average Electric Rate for this resource plan.

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

9 A. The results of the economic analyses of the resource plans are presented in  
10 Exhibit AWW-10, which provides the projected Levelized System Average  
11 Electric Rate for each resource plan. In addition, Exhibit AWW-10 also states  
12 whether each resource plan will result in one group of customers subsidizing  
13 other groups of customers in regards to the resource plan's effect on electric  
14 rates. This important consideration is referred to as cross-subsidization  
15 between different groups of customers.

16  
17 The results clearly point to the RIM Plan being the best option for FPL's  
18 customers. It provides the lowest Levelized System Average Electric Rate  
19 and ensures that no cross-subsidization between customer groups will occur.  
20 Note that although the Supply Only Plan does not have the lowest electric  
21 rate, it also avoids cross-subsidization.

1       **Q.    Are the differences in the Levelized System Average Electric Rates**  
2       **between the three resource plans presented in Exhibit AWW-10**  
3       **meaningful?**

4       A.    Yes. This is demonstrated in Exhibit AWW-11. This exhibit compares the  
5       levelized rates in the RIM-based DSM plan versus the levelized rates in the  
6       TRC-based DSM plan. As shown in the exhibit, the seemingly modest  
7       differential in levelized rates between these two plans equates to a very large  
8       one-time cost of approximately \$200 million in year 2029 being added  
9       unnecessarily to the RIM-based DSM plan.

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

12      A.    Yes. Exhibit AWW-12 provides a comparison of electric rates and customer  
13      bills for the three resource plans.

14  
15           In comparing the two “With DSM” Resource Plans during 2020-2029, the  
16           RIM Resource Plan is projected to result in the lowest electric rates and  
17           average customer bills in each year. The TRC Resource Plan is projected to  
18           result in the highest electric rates and the highest average customer bills in  
19           each year.

20           These results are expected. DSM additions typically put upward pressure on  
21           electric rates, and bills, in the years prior to avoiding/deferring a generating  
22           unit. This is typically seen in screening analyses of individual DSM  
23           measures. Also expected is that this near-term impact of placing upward

1 pressure on rates and bills is minimized by DSM measures that survived the  
2 RIM screening test path. Conversely, the TRC screening test does not allow  
3 the consideration of two important cost impacts on electric rates and, because  
4 this screening test does not include all relevant DSM-related costs for a DSM  
5 measure, DSM measures that “pass” only the TRC screening test path  
6 typically result in higher electric rates.

7 **Q. Returning to Exhibit AWW-10, this exhibit presents information**  
8 **regarding whether the resource plans will avoid the potential for cross-**  
9 **subsidization of program participants by the general body of customers.**  
10 **Would you please discuss this further?**

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

16  
17 For example, consider the case when FPL evaluates only Supply options.  
18 Because all customers on FPL’s system are served by the Supply option if that  
19 option is chosen, all customers are “participants” in the selected Supply  
20 option. Electric rates and bills for all customers move in the same “direction”;  
21 either up or down from year-to-year compared to another Supply option that  
22 could be selected. Therefore, there is no subsidization of one group of  
23 customers by another group.

1           However, the same is not true for DSM options. With DSM options,  
2 customers have a choice to participate or not participate in DSM options for  
3 which they are eligible. Furthermore, customers cannot participate in DSM  
4 options they are ineligible for, or in measures which they may have already  
5 installed. This leads to an additional, and important, consideration of how the  
6 two different groups of customers, participants and non-participants, are  
7 impacted when DSM options are selected. If the utility chooses a DSM option  
8 that places upward pressure on electric rates compared to another DSM  
9 option, the result will be the formation of two groups of customers: one group  
10 of “losers” who do not, or cannot, participate in the first DSM option and who  
11 face higher electric rates and bills, and one group of “winners” who can and  
12 do, participate in the first DSM option and, through reduced usage, reduce  
13 their bills (even though electric rates will have increased due to the first DSM  
14 option being offered by the utility).

15  
16           This outcome is undesirable because one group of customers (the non-  
17 participants) subsidizes the other group of customers (the participants)  
18 through higher electric rates caused by the imposition of the first DSM option,  
19 *i.e.*, there is a cross-subsidization of one customer group by another.

20       **Q.    How would you summarize the economic analyses results?**

21       A.    Two results from the economic analyses are noteworthy. First, the RIM  
22 Resource Plan helps meet FPL’s resource needs through 2030 while providing  
23 the lowest system Levelized System Average Electric Rates over the analysis

1 period and the lowest electric rates of either of the “With DSM”-based  
2 Resource Plans for each year in the 2020-2030 time period. Second, the RIM  
3 plan meets FPL’s resource needs while avoiding cross-subsidization of one  
4 customer group by another. The TRC Resource Plan achieves neither of  
5 these. These two factors combine to make the RIM Resource Plan the best  
6 resource plan from an economic perspective.

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

9 A. The non-economic analysis focused on two perspectives that address the years  
10 2020-2030. The first perspective is a direct comparison of projected annual  
11 SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emissions for the FPL system for each of the resource  
12 plans. The second perspective is a direct comparison of projected annual FPL  
13 system oil and natural gas usage for the resource plans.

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

15 A. Yes. The results of the non-economic analyses are presented in Exhibits  
16 AWW-13 and AWW-14. There is very little difference between the three  
17 resource plans in regards to non-economic factors.

18 **Q. Based on these results, which DSM portfolio should be the basis for**  
19 **FPL’s DSM Goals?**

20 A. Based on the economic and non-economic factors discussed previously, the  
21 RIM-based portfolio should be the basis for FPL’s proposed DSM Goals.

22 **Q. Does FPL’s 10% GRM requirement impact FPL’s proposed DSM Goals?**

23 A. No. The GRM criterion does not impact FPL’s proposed DSM Goals.

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

3       A.    Yes. The resource plan associated with FPL's proposed DSM Goals fulfills  
4       the primary drivers of FPL's resource planning process:

5       -     The timing and magnitude of resource needs: via a combination of  
6           DSM and supply resources, the RIM Resource Plan ensures that all of  
7           FPL's resources needs are met throughout the time period of the  
8           analysis and all of FPL's reliability criteria are satisfied.

9       -     The rate impact to FPL's customers: as discussed earlier, the RIM  
10          Resource Plan has the lowest Levelized System Average Electric Rate  
11          among the plans evaluated, ensuring that all of FPL's customers  
12          benefit from the plan and no cross-subsidization occurs between  
13          participants and non-participants of DSM measures.

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

16      A.    Yes because less DSM is cost-effective than was the case in the last DSM  
17      Goals docket. FPL witnesses Sim and Koch discuss this in more detail in  
18      their testimonies.

19      **Q.    Does this conclude your direct testimony?**

20      A.    Yes.

1 BY MR. GUYTON:

2 Q Did FPL also file with your prefiled direct  
3 testimony Exhibits labeled AW-1 through AW-14?

4 A Yes, they did.

5 Q And did FPL file an errata for AWW-4?

6 A Yes, that's correct.

7 Q And is the information in those exhibits, as  
8 corrected by your errata, true and correct to the best  
9 of your knowledge and belief?

10 A Yes, it is.

11 Q Mr. Whitley, would you please summarize your  
12 direct testimony for the Commissioners?

13 A Yes.

14 Good afternoon. Commissioners, FPL's proposed  
15 DSM goals follow both the Commission's rules and tried  
16 and true resource planning principles.

17 First, FPL followed the DSM goals rule which  
18 requires utilities to use their latest planning process  
19 to propose goals.

20 Second, FPL followed the DSM cost-  
21 effectiveness rule and employed all three Commission  
22 approved cost-effectiveness tests to develop appropriate  
23 goals. My testimony covers four out of the six steps in  
24 FPL's overall the analysis of DSM. The first of these  
25 steps is to determine FPL's resource needs.

1 FPL bases its determination on its latest  
2 planning process, and utilizes its reliability criteria  
3 to identify the timing and magnitude of its resource  
4 needs.

5 The second step covered in my testimony  
6 involves FPL's economic screening of DSM. Over 6,500  
7 measures from the technical potential study were  
8 screened using two separate paths. One using the RIM  
9 and Participant test, and the other using the TRC and  
10 Participant test. All applicable and reasonably  
11 quantifiable benefits and costs were included in both  
12 screening pathways. Consistent with prior Commission  
13 practice, a less than two-year payback screen was  
14 applied to address of free-ridership.

15 In the third step analysis of my testimony  
16 three resource plans were developed; the plan based on  
17 the RIM achievable potential, a plan TRC achievable  
18 potential and a supply only plan consisting only of  
19 supply-side measures.

20 And the fourth step of analysis covered in my  
21 testimony, FPL performed economic and noneconomic  
22 evaluation of these three resource plans.

23 For the economic evaluation, the plan based on  
24 the RIM screening path had the lowest levelized system  
25 average electric rate. This indicates that the RIM plan

1 will fulfill all of FPL's reliability criteria with the  
2 best rate impact to FPL's customers and will avoid  
3 cross-subsidization among customer groups.

4 For the noneconomic evaluation, all three of  
5 the resource plans analyzed showed similar reductions  
6 for emissions and fossil fuel usage over the next 10  
7 years. After considering both of the factors, the clear  
8 winner was the RIM-based resource plan. This plan met  
9 all of FPL's reliability criteria, had the best rate  
10 impact to FPL's customers, avoided cross-subsidization  
11 and added approximately 350 megawatts of summer demand  
12 reduction over the next 10 years.

13 For these reasons, FPL is basing its proposed  
14 goals off the results of the RIM resource plan.

15 Thank you.

16 MR. GUYTON: Commissioners, I would note that  
17 Mr. Whitley's exhibits have been identified, and  
18 the composite exhibit is Exhibits 6 through 19.

19 CHAIRMAN GRAHAM: Duly noted.

20 MR. GUYTON: We tender Mr. Whitley for  
21 cross-examination.

22 CHAIRMAN GRAHAM: Thank you very much.

23 Mr. Whitley, welcome.

24 THE WITNESS: Good afternoon.

25 CHAIRMAN GRAHAM: Okay. We are starting with

1 OPC.

2 MR. DAVID: No questions for OPC.

3 CHAIRMAN GRAHAM: FIPUG.

4 EXAMINATION

5 BY MR. MOYLE:

6 Q Just a couple.

7 There was an exhibit that was handed out  
8 previously that related to variability of natural gas  
9 forecast. I think the prior witness said that that was  
10 a Mr. Sim or a Mr. Whitley question. Do you want to  
11 kick it down the road to Mr. Sim?

12 A I think I am going to punt it down a little  
13 further, perhaps Dr. Sim can answer that question.

14 Q Yeah. Dr. Sim probably would do the same to  
15 you if he was number two in the lineup.

16 A Yes.

17 Q So anyway. The question I will ask you is  
18 that things like carbon costs and costs of natural gas,  
19 they are significant independent variables in the  
20 analysis that you go through with respect to determining  
21 energy efficiency measures, correct?

22 A Yes, that's correct.

23 Q All right. And so to the extent that those  
24 change, are a material change, then that would have an  
25 impact on the analysis that you have done, correct?

1           A     Yes, that's correct.

2           MR. MOYLE:   Okay.  That's all I have.

3           CHAIRMAN GRAHAM:  Okay.  I know Ms. Wynn  
4           doesn't have any questions.

5                               EXAMINATION

6   BY MS. CORBARI:

7           Q     **Good afternoon, Mr. Whitley.  Just a quick --**  
8           **hopefully quick questions.**

9                       You were involved in performing some analyses  
10          in both the Okeechobee and Dania Beach need  
11          determinations, correct?

12          A     Yes, that's correct.

13          Q     **And both those plants went to the Commission**  
14          **for need determinations, correct?**

15          A     Yes, that's correct.

16          Q     **In both instances, the Commission found there**  
17          **were no demand-side management to offset the need for**  
18          **those facilities, correct?**

19          A     Yes.  I believe in both cases, FPL utilized  
20          its current DSM goals, which are the goals that are now  
21          expiring at the end of 2019.

22          Q     **And both plants followed the last goals**  
23          **proceeding?**

24          A     Yes, that's correct.

25               MS. CORBARI:  No more questions.

1 CHAIRMAN GRAHAM: Okay. SACE.

2 MR. MARSHALL: Thank you.

3 EXAMINATION

4 BY MR. MARSHALL:

5 Q Mr. Whitley, if I could direct your attention  
6 to the -- do you have the exhibits?

7 A Yes.

8 Q And this will be Exhibit No. 273, the top  
9 line, where it says, FPL response to staff Interrogatory  
10 No. 19 from staff's first set of interrogatories?

11 A Okay.

12 Q You sponsored the answer to this  
13 interrogatory, is that right?

14 A Yes, that's correct.

15 Q And so FPL used a 7.73 percent discount rate  
16 for all three cost-effectiveness tests in the analysis?

17 A Yes.

18 Q And that including the Participant Cost test?

19 A Yes, it did.

20 Q And you would agree that the participant is  
21 not the utility, and might have a different discount  
22 rate, is that right?

23 A That's correct. And I believe we answered  
24 further questions in another interrogatory regarding the  
25 Participant test usage.

1           **Q     If I could direct your attention to the**  
2 **confidential exhibit.**

3           MR. MARSHALL:   And staff has the copies of the  
4 confidential exhibit for those parties that have  
5 signed NDAs with Florida Power & Light.

6           MR. GUYTON:   May I request that?  I did not  
7 get a red folder.

8           CHAIRMAN GRAHAM:  Staff, do you have an extra  
9 red folder for the attorney?

10          MR. GUYTON:  Thank you.

11          MS. CORBARI:  Chairman Graham, FDACS, as a  
12 state agency, cannot execute an NDA.  I do not need  
13 a red folder.

14          CHAIRMAN GRAHAM:  Okay.  I don't really want  
15 it either, but --

16 BY MR. MARSHALL:

17          **Q     And in the red folder is the confidential**  
18 **response to staff's 9th set of interrogatories No. 94?**

19          A     Yes, that's correct.

20          **Q     And you sponsored the answer to this**  
21 **interrogatory?**

22          A     Yes, I did.

23          **Q     And in this interrogatory answer, you provide**  
24 **the lost revenue and basis points for both RIM and TRC**  
25 **achievable potential?**

1           A     Yes, for a small subset of the analysis  
2 period. Yes.

3           Q     And lost revenue is how much customers are  
4 basically not paying the utility due to the  
5 implementation of DSM measures, is that right?

6           A     No, I don't think that's quite the correct way  
7 to characterize it. It's the unrecovered revenue  
8 requirements that the utility experiences when their net  
9 electric load is lower than the forecast. And as DSM  
10 lowers that load, that's applied to the DSM measures  
11 that we evaluate.

12          Q     So in the DSM program context, I just want to  
13 make sure I have this right, lost revenue, when looking  
14 at the TRC achievable potential, for example, would be  
15 the resulting basically loss of sales, is the lower net  
16 energy load and, thus, the less revenue to Florida Power  
17 & Light?

18          A     Again, it's the lower net energy, the low part  
19 is correct. And it's -- FPL's fixed costs are then  
20 spread out to a smaller number, leading to that  
21 unrecovered revenue requirement.

22          Q     And basically what makes it unrecovered  
23 revenue is that it's not revenue that people are paying  
24 to FP&L?

25          A     Yes, I think that's a close enough

1 approximation of what it is. Again, it's dealing with  
2 FPL's total fixed costs, and how they are spread over  
3 its load.

4 **Q And if I could direct your attention to the --**  
5 **well, first, staying away from the highlighted areas so**  
6 **we are not in confidential territory. In 2025, under**  
7 **RIM, the lost revenue for, under the RIM achievable**  
8 **potential, is only \$31,898?**

9 A Yes, that's correct. As the RIM accounts for  
10 rate impact, it tends to reduce lost revenues.

11 **Q And for TRC, on the other hand, that lost**  
12 **revenue is over \$12.5 million?**

13 A Yes, in 2025, which is only a portion of the  
14 analysis period that we looked at.

15 **Q If you added up all the lost revenue under the**  
16 **TRC achievable potential, subject to check, you would**  
17 **get approximately \$113 million, is that right?**

18 A I don't -- subject to check, that could be  
19 correct. But, again, through 2029 is only a portion of  
20 the analysis period that we looked at. We looked at  
21 this analysis through 2065. So the lost revenues would  
22 also continue through the end of that analysis period.

23 MR. MARSHALL: And I don't actually think we  
24 marked this as an exhibit, so this would be Exhibit  
25 274.

1 (Whereupon, Exhibit No. 274 was marked for  
2 identification.)

3 BY MR. MARSHALL:

4 Q And highlighted in yellow and, thus,  
5 confidential are the equivalent basis points through  
6 2025?

7 A Yes, that's correct.

8 Q And all of the basis points highlighted in  
9 yellow are less than 0.002?

10 A I am sorry, could you repeat the number again?

11 Q Yes. They are all less than 0.002?

12 A Yes, that's correct.

13 Q If I could direct your attention to the next  
14 document from the regular stack, nonconfidential stack.  
15 The one that says FPL April 2019 rate of return  
16 surveillance report filed June 5th, 2019.

17 MR. MARSHALL: This would be Exhibit 275.

18 CHAIRMAN GRAHAM: June 15th, 2019?

19 MR. MARSHALL: Yes.

20 CHAIRMAN GRAHAM: No. 275.

21 (Whereupon, Exhibit No. 275 was marked for  
22 identification.)

23 BY MR. MARSHALL:

24 Q If I could direct your attention to the first  
25 page of that exhibit. Florida Power & Light reported

1     **that its return on common equity in the surveillance**  
2     **report was 11.60 percent?**

3             MR. GUYTON: Object, there is no foundation  
4             been laid that this witness is familiar with this  
5             exhibit.

6     BY MR. MARSHALL:

7             **Q     Are you familiar at all with FPL's**  
8     **surveillance report requirements?**

9             A     No, I am not.

10            **Q     Would Dr. Sim be any more familiar with this**  
11     **than you?**

12            A     No, I don't think he would either.

13            CHAIRMAN GRAHAM: Ask him if he knows the  
14            answer to the question. He can tell you yes or no.

15            MR. MARSHALL: Okay.

16     BY MR. MARSHALL:

17            **Q     Well, do you have any reason to doubt that the**  
18     **return on common equity was 11.60 percent?**

19            A     No, seeing as this was reported to the PSC, I  
20     have no reason to doubt that that's in error.

21            **Q     Do you know if that's the top of FPL's**  
22     **authorized return on range?**

23            A     No, I do not. I do not know what the top  
24     return on equity is for FPL currently.

25            **Q     Okay. I think it's going to be two ahead, do**

1 **you see FPL response to staff Interrogatory No. 18?**

2 MR. MARSHALL: And this would be Exhibit No.  
3 276.

4 (Whereupon, Exhibit No. 276 was marked for  
5 identification.)

6 BY MR. MARSHALL:

7 **Q Did you sponsor the answer to this**  
8 **interrogatory?**

9 A Yes, I did.

10 **Q And the attachments contain the calculations**  
11 **for the cumulative revenue requirements for Florida**  
12 **Power & Light?**

13 A Yes, that's one-half of the evaluation -- of  
14 the economic evaluation that we performed for the  
15 resource plans in this docket.

16 **Q And the cumulative present value revenue**  
17 **requirement represents the total cost that's incurred by**  
18 **the utility?**

19 A Yes. It's the total cost over the period of  
20 analysis that the utility needs to incur to perform its  
21 operations.

22 **Q If I could direct your attention to the supply**  
23 **only plan graph --**

24 A Okay.

25 **Q -- table.**

1           At the bottom of that table is the cumulative  
2 present value revenue requirement, is that right?

3 Bottom right.

4           A     Yes, that's correct.

5           Q     And so under the supply only plan, the  
6 cumulative revenue requirement was \$53.27 billion?

7           A     Yes, that's correct.

8           Q     And directing your attention to the next page.  
9 Under the RIM plan, the cumulative present value  
10 requirement was \$53.028 billion?

11          A     Yes, that's correct.

12          Q     And then on the next page, under the TRC plan,  
13 the cumulative present value revenue requirement was  
14 \$52.924 billion?

15          A     Yes, that's also correct.

16          Q     And that would be \$104 million less than under  
17 the RIM plan?

18          A     Yes, that's correct. Again, that's only  
19 one-half of the economic evaluation that we performed,  
20 but it is \$104 million less.

21          Q     If I could direct your attention to FPL  
22 response to Interrogatory No. 17.

23                MR. MARSHALL: And this would be Exhibit 277.

24                (Whereupon, Exhibit No. 277 was marked for  
25 identification.)

1 BY MR. MARSHALL:

2 Q You supplied the answer to this interrogatory?

3 A Yes, I did.

4 Q And this provides the levelized system average  
5 electric -- excuse me. This provides a levelized system  
6 average electric rate calculation for the supply only  
7 resource plan and the TRC resource plan?

8 A Yes. Attachment No. 1 is the supply only  
9 resource plan. Attachment No. 2 is the same information  
10 for the TRC resource plan.

11 Q And under the supply only plan, DSM energy  
12 reductions are frozen in 2020, is that right?

13 A That's correct, yes.

14 Q And that led to a levelized system average  
15 electric rate of 9.6321 cents per kilowatt hour?

16 A Yes, that's correct.

17 Q And attachment No. 2 contains the levelized  
18 system average electric rate calculation for the TRC  
19 resource plan?

20 A Yes, that's also -- yes.

21 Q And that levelized system average electric  
22 rate was calculated to be 9.6332 cents per kilowatt  
23 hour?

24 A Yes, that number is correct.

25 Q And that would be 0.0001 cents per kilowatt

1 hour greater than the supply only plan?

2 A I am sorry, could you repeat that number  
3 again?

4 Q Sure. Well -- right, I think my math was  
5 slightly off there, but what would the difference be  
6 between those two plans?

7 A It would be a difference of approximately  
8 .0011 cents per kilowatt hour between the two plans.

9 Q And that matches what I --

10 A Okay.

11 Q -- my on-the-spot math here.

12 And if I could direct your attention to FPL  
13 response to staff Interrogatory No. 27 from staff's  
14 first set of interrogatories.

15 MR. MARSHALL: And this would be Exhibit 278.

16 (Whereupon, Exhibit No. 278 was marked for  
17 identification.)

18 BY MR. MARSHALL:

19 Q And you sponsored the answer to this  
20 interrogatory?

21 A Yes, I did.

22 Q And this contains the net energy for load  
23 under the RIM achievable potential and the TRC  
24 achievable potential?

25 A Yes, that's part of it. It also includes the

1 megawatt values, the peak summer demand and winter  
2 demand values for both of these -- both of those two  
3 resource plans, as well as the information for the  
4 supply only plan and the 2019 10-year site plan.

5 Q And so looking at 2029, the net energy for  
6 load under the RIM achievable potential, is 128,907  
7 gigawatt hours?

8 A Yes, that's correct.

9 Q And while -- for the TRC achievable potential,  
10 it is 128,713 gigawatt hours?

11 A Yes.

12 Q And that's a difference of 194 gigawatt hours?

13 A Yes, the math appears to check out.

14 Q And do you have your testimony in front of  
15 you?

16 A I do.

17 Q If I could direct your attention to Exhibit  
18 AWW-9?

19 A Okay, I am there.

20 Q This is the example of levelized system  
21 average electric rate calculation for the RIM resource  
22 plan, is that right?

23 A Yes, that's correct.

24 Q Okay. And in 2029, the system revenue  
25 requirements under the RIM resource plan are \$12.326

1 billion.

2 A Yes, that's correct.

3 Q And -- sorry -- and looking back at the TRC  
4 resource plan on Exhibit 277, the system revenue  
5 requirements are \$12.325 billion, is that right?

6 A Yes, that's correct. For that one year, that  
7 number is lower.

8 Q And so the revenue requirement under the TRC  
9 plan in 2029 would be lower than the RIM plan in 2029  
10 for Florida Power & Light?

11 A Yes, that's correct. For that one particular  
12 year, that is lower. And that's, again, only part of  
13 the equation here, as you can see by the other columns  
14 indicated on all these exhibits.

15 Q Under the TRC resource plan, net energy load  
16 is less than under the RIM plan, is that right?

17 A Yes, that's correct.

18 Q And if total usage for net energy load went  
19 down under the TRC plan, that means that average usage  
20 per customer would go down?

21 A Not necessarily. We don't know exactly what  
22 the average customer is going to be using. And, in  
23 fact, we don't really have an average customer because  
24 there is so many different customer classes, customer  
25 participation levels, so we don't have any idea what the

1 average customer will do in a difference between a RIM  
2 resource plan and a TRC resource plan.

3 Q And if you have the same number of customers,  
4 and one has a lower net energy for load, how could it be  
5 that if -- under the one that has the lower net energy  
6 for load, that average use could be higher?

7 A I didn't indicate that the average use would  
8 be higher. I just indicated that we don't know  
9 exactly -- we don't have an average customer. We have  
10 many different types of customers, many different types  
11 of participation levels in DSM, and because of that, we  
12 can't define an average customer or average customer  
13 usage.

14 Q But -- sure. But if you just took the -- all  
15 of FPL's customers together, and if there was a lower  
16 net energy for load from all the customers, then  
17 wouldn't -- and they were the same number of customers,  
18 wouldn't, by definition, the total average use for  
19 customer have to be lower?

20 MR. GUYTON: Objection, asked and answered.

21 CHAIRMAN GRAHAM: I agree, move on.

22 BY MR. MARSHALL:

23 Q Mr. Whitley, you don't know, between the RIM  
24 and the TRC plan, which one would have a lower average  
25 bill once adjusting for the average kilowatt hour usage?

1           A     No.  Again, I would point back to my previous  
2 answer that we can't come up with an average customer or  
3 an average bill that represents all our different  
4 customers and their different characteristics.

5           **Q     And so the answer would be you don't know the**  
6 **answer to that?**

7           A     That's correct.  I wouldn't be able to answer  
8 that.

9           **Q     And you, yourself, did not conduct any**  
10 **empirical studies of the two-year payback screen?**

11          A     No.  I just applied the two-year payback  
12 screen as part of our screening analysis, our economic  
13 screening analysis.  So I did not conduct any empirical  
14 evaluation of that screen.

15          **Q     And you are not aware of any kind of empirical**  
16 **testing like that?**

17          A     No.  I think the only person who would be  
18 aware of any of that would have been Mr. Koch.

19          **Q     If I could direct your attention to your**  
20 **Exhibit AWW-7 of your testimony.**

21          A     Okay.

22          **Q     And in this exhibit, you are doing a**  
23 **comparison of the achievable potential under RIM and TRC**  
24 **with Florida Power & Light's projected summer resource**  
25 **needs?**

1 A Yes, that's correct.

2 Q Okay. And FPL projects a resource need in  
3 2026, is that right?

4 A Yes, that's correct.

5 Q And the TRC path is five megawatts short of  
6 meeting that projected need?

7 A Yes, it is. If you subtract column three and  
8 column two, you wind up with a five megawatt  
9 differential.

10 Q And if that need had been met, it could have  
11 deferred that power plant for another year?

12 A Yes, if it could have been met in a  
13 cost-effective manner, in which that plan was -- had a  
14 lower levelized electric rate than before, then it could  
15 be deferred that year.

16 Q And there is value in deferring a power plant  
17 for a year?

18 A There can be. It depends on the type of unit,  
19 but when you defer a power plant, you move its install  
20 costs back a year, but you will also have a fuel penalty  
21 if that unit is increasing your system efficiency.

22 But there can, if you net out those  
23 differentials, depending on the characteristics of the  
24 unit, you can get a benefit to deferring the unit for a  
25 year.

1           MR. MARSHALL: Thank you. I have no further  
2 questions.

3           CHAIRMAN GRAHAM: Okay. Staff.

4           MS. DUVAL: Staff has no questions. Thank  
5 you.

6           CHAIRMAN GRAHAM: Commissioners.

7           Okay. Redirect? Oh, sorry, Commissioner  
8 Polmann.

9           COMMISSIONER POLMANN: Thank you, Mr.  
10 Chairman.

11           To follow up on the line of questioning that  
12 you just heard, can you explain for me the meaning  
13 of the term achievable potential as used in the DSM  
14 goal setting?

15           THE WITNESS: Sure. Achievable potential is  
16 after we've conducted the economic screening and  
17 have a number of measures that pass the particular  
18 economic screening path, I send a list of those  
19 measures to Mr. Koch, and he generates the  
20 achievable potential that is available.

21           In the case of my testimony, I use the  
22 achievable potential summer megawatts as our  
23 resource needs are driven by our summer reliability  
24 requirements, and so those are the important values  
25 that I would use in there.

1           I think -- I don't know if that fully answers  
2           your question. I know Mr. Koch could probably  
3           provide a more in-depth explanation of achievable  
4           potential for you.

5           COMMISSIONER POLMANN: Well, in the response  
6           to the interrogatory here that you sponsored, there  
7           is achievable potential shown in gigawatt hours,  
8           but I am -- I am trying to understand achievable  
9           potential as numeric value that's a goal, that's  
10          not necessarily what's actually accomplished. Am I  
11          understanding that correctly? It's a number that  
12          could be achieved through programmatic efforts?

13          THE WITNESS: I think it's a number that could  
14          be realistically achieved given the cost-  
15          effectiveness levels of DSM and how much incentive  
16          a utility is able to offer.

17          COMMISSIONER POLMANN: And is there a known  
18          relationship between what's actually achieved that  
19          you -- I mean, how is -- what's the follow-up? Is  
20          there experience that will indicate this is the  
21          achievable potential, and then you develop a  
22          program, and you actually expect --

23          THE WITNESS: I think --

24          COMMISSIONER POLMANN: -- or do you expect to  
25          achieve all of it I guess is my question?

1 THE WITNESS: Okay. I think Mr. Koch could  
2 probably answer this in -- with better accuracy  
3 than I could. He is responsible for the achievable  
4 potential, developing it. And he is also, as part  
5 of the DSM group, is responsible for evaluating our  
6 goals as we go forward in time.

7 COMMISSIONER POLMANN: Okay. But I think, if  
8 I understand what you are saying, achievable  
9 potential is the calculation?

10 THE WITNESS: Yes.

11 COMMISSIONER POLMANN: It's not -- it's not a  
12 result that you measure from the field, per se?

13 THE WITNESS: No. It's a number that Mr. Koch  
14 calculates based on inputs that I provide to him,  
15 and based on inputs that he has available to him.

16 COMMISSIONER POLMANN: Okay. Thank you.

17 That's all I have, Mr. Chairman.

18 MR. GUYTON: Commissioner, Mr. Koch will be  
19 back for rebuttal and can field that question.

20 COMMISSIONER POLMANN: Thank you.

21 CHAIRMAN GRAHAM: Okay. Redirect?

22 FURTHER EXAMINATION

23 BY MR. GUYTON:

24 Q Mr. Whitley, you were asked about cumulative  
25 present value revenue requirements. And in your

1 response, you said that that was only half the answer,  
2 or half the proper analysis. Would you elaborate to the  
3 Commission what you meant?

4 A Yes. When we evaluate resource options, we  
5 always do so on a electric rate basis. So in -- for  
6 example, two resource plans we are evaluating two  
7 supply-side options, we can use CPVRR as a proxy for  
8 electric rate calculations.

9 In a DSM goals analysis, where we are  
10 evaluating separate resource plans with differing levels  
11 of DSM and, therefore, differing levels of net electric  
12 load, we need to -- CPVRR would only provide, like I  
13 said, half of the equation in terms of rate impact. So  
14 that's why, in my exhibits, I performed these levelized  
15 rate calculations because they factor in both the effect  
16 of the cumulative present value revenue requirements as  
17 well as the impact of rates from differing levels of net  
18 electric load.

19 Q And of the two DSM portfolios, RIM and TRC,  
20 which has the higher levelized system average rate?

21 A I show in Exhibit AWW-10, the comparison of  
22 all three resource plans, the TRC plan has the highest  
23 levelized electric rate.

24 MR. GUYTON: That's all the redirect we have.

25 CHAIRMAN GRAHAM: Okay. Exhibits.

1 MR. GUYTON: We move Exhibits 6 through 19.

2 CHAIRMAN GRAHAM: Exhibits 6 through 19, is  
3 there any objections to moving Exhibits 6 through  
4 19? Seeing none, we will enter that into the  
5 record.

6 (Whereupon, Exhibit Nos. 6-19 were received  
7 into evidence.)

8 CHAIRMAN GRAHAM: SACE?

9 MR. MARSHALL: We move Exhibits 273 through  
10 278.

11 CHAIRMAN GRAHAM: Exhibits 273 to 278, any  
12 objections to moving these into the record?

13 MR. GUYTON: I am sorry, was 278 the one that  
14 was deferred or -- to another witness?

15 MR. MARSHALL: No, that was 272.

16 CHAIRMAN GRAHAM: 272.

17 MR. GUYTON: Okay. Thank you.

18 CHAIRMAN GRAHAM: So we are just moving 273  
19 through 78. Seeing no objections, we will enter  
20 those all into the record.

21 (Whereupon, Exhibit Nos. 273-278 were received  
22 into evidence.)

23 CHAIRMAN GRAHAM: Okay. Mr. Whitley, thank  
24 you very much. We will see you again soon, I am  
25 sure.

1                   MR. COX: FPL calls its next witness,  
2                   Dr. Steven Sim.

3                   Whereupon,

4   DR. STEVEN SIM  
5                   was called as a witness, having been previously duly  
6                   sworn to speak the truth, the whole truth, and nothing  
7                   but the truth, was examined and testified as follows:

8   EXAMINATION

9                   BY MR. C. WRIGHT:

10                  **Q        Good afternoon, Dr. Sim, have you been sworn?**

11                  A        Yes.

12                  **Q        Will you please state your name and business**  
13                  **address for the record?**

14                  A        Steven Sim, 700 Universe Boulevard, Juno  
15                  Beach, Florida.

16                  **Q        By whom are you employed, and in what**  
17                  **capacity?**

18                  A        I am employed by Florida Power & Light Company  
19                  as Director of Integrated Resource Planning.

20                  **Q        Have you prepared and caused to be filed 40**  
21                  **pages of direct testimony in this proceeding?**

22                  A        Yes.

23                  **Q        Do you have any corrections or changes to your**  
24                  **prefiled direct testimony?**

25                  A        No.

1           Q     If I asked you the questions contained in your  
2 direct testimony, would your answers be the same?

3           A     Yes.

4           MR. C. WRIGHT:  Chairman, I would ask that Dr.  
5 Sim's prefiled direct testimony be entered into the  
6 record as though read.

7           CHAIRMAN GRAHAM:  We will enter Dr. Sim's  
8 prefiled direct testimony into the record as though  
9 read.

10          MR. C. WRIGHT:  Thank you.

11          (Whereupon, prefiled testimony was inserted.)

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## I. INTRODUCTION

1

2

3 **Q. Please state your name and business address.**

4 A. My name is Steven R. Sim, and my business address is 700 Universe  
5 Boulevard, Juno Beach, Florida 33408.

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

7 A. I am employed by Florida Power & Light Company (FPL) as Director of  
8 Integrated Resource Planning.

9 **Q. Please describe your duties and responsibilities for FPL in that position.**

10 A. I direct and perform analyses that are designed to determine the magnitude  
11 and timing of FPL's resource needs and then develop the integrated resource  
12 plan with which FPL will meet those resource needs. I also direct and  
13 perform analyses that are designed to otherwise improve system economics  
14 and/or enhance system reliability for FPL's customers.

15 **Q. Please describe your educational background and professional  
16 experience.**

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

22

23 While completing my degree program at UCLA, I was also employed full-  
24 time as a Research Associate at the Florida Solar Energy Center during 1977 -

1 1979. My responsibilities at the Florida Solar Energy Center included an  
2 evaluation of Florida consumers' experiences with solar water heaters and an  
3 analysis of potential renewable energy resources applicable in the  
4 Southeastern United States, including photovoltaics, biomass, and wind  
5 power.

6  
7 In 1979, I joined FPL. From 1979 until 1991, I worked in various  
8 departments including Marketing, Energy Management Research, and Load  
9 Management, where my responsibilities concerned the development,  
10 monitoring, and cost-effectiveness analyses of demand side management  
11 (DSM) programs. In 1991, I joined my current department, then named the  
12 System Planning Department, where I held different supervisory and/or  
13 managerial positions dealing with integrated resource planning (IRP). I  
14 assumed my present position in 2017.

15 **Q. Have you previously testified on resource planning and/or DSM issues**  
16 **before the Florida Public Service Commission?**

17 A. Yes. I have testified before the Florida Public Service Commission (FPSC) in  
18 numerous dockets. These dockets have dealt with a variety of issues such as  
19 system reliability and economic analyses of many types of resource options.  
20 Among the subjects addressed in those dockets are: (i) DSM goal-setting, (ii)  
21 need determination filings for new combined cycle (CC) units, advanced coal  
22 units, and nuclear units, (iii) nuclear feasibility analyses, and (iv) economics  
23 of solar and battery storage on FPL's system. In regard to DSM goal-setting, I

1 have provided testimony in all five of the previous FPSC DSM goal-setting  
2 dockets starting in 1994.

3 **Q. Are you sponsoring any exhibits in this case?**

4 A. Yes. I am sponsoring Exhibits SRS-1 through SRS-5 which are attached to  
5 my testimony:

6 Exhibit SRS-1 A Comparison of 2009, 2014, and 2019 Natural Gas  
7 Cost Forecasts for the Years 2020 - 2029;

8 Exhibit SRS-2 A Comparison of 2009, 2014, and 2019 CO<sub>2</sub>  
9 Compliance Cost Forecasts for the Years 2020 -  
10 2029;

11 Exhibit SRS-3 A Comparison of 2009, 2014, and 2019 System  
12 Average Heat Rates for FPL's Gas-Fueled Generation  
13 Fleet;

14 Exhibit SRS-4 A Comparison of FPL's 2009, 2014, and 2019 In-  
15 Service Year Capital Costs for the Avoided CC Unit;  
16 and,

17 Exhibit SRS-5 A Comparison of a Benefits Only Calculation for a  
18 Proxy DSM Measure Using System Cost Values from  
19 the 2014 and 2019 DSM Goals Dockets

20 **Q. What is the scope of your testimony?**

21 A. My testimony is designed to support the testimonies of the other two FPL  
22 witnesses by explaining why it is both logical and appropriate for FPL's  
23 proposed DSM Goals to be lower than the goals set by the FPSC in the last

1 DSM Goals docket in 2014. Specially, I discuss the “benefits” side of benefit-  
2 to-cost (or cost-effectiveness) analyses of DSM measures that is a major topic  
3 in this docket and explain why the potential benefits of DSM measures,  
4 particularly on FPL’s system, have decreased so significantly.

5 **Q. Please summarize your testimony.**

6 A. My testimony points out that DSM benefits are simply FPL system costs that  
7 are potentially avoided (or deferred) by DSM. I examine the eight primary  
8 “drivers” of FPL’s system variable and fixed costs that are potentially  
9 avoidable by DSM. In this examination, I compare the current forecasted  
10 values for each driver with the forecasted values from the most recent DSM  
11 Goals dockets (2009 and 2014). The result of the examination is that seven of  
12 the eight drivers have been moving, and are continuing to move, in the  
13 direction of lower system costs for FPL.

14  
15 This trend of overall lower FPL system costs is very beneficial for FPL’s  
16 customers because it results in helping to keep electric rates low. However,  
17 lower system costs automatically reduce DSM’s potential benefits from  
18 avoiding those same costs. Consequently, the cost-effectiveness of DSM on  
19 FPL’s system, which has generally been trending lower for a number of years,  
20 is continuing to trend lower. I demonstrate the magnitude of the decrease in  
21 DSM benefits by calculating a benefits-only analysis of a DSM proxy  
22 measure first using the then-current FPL system cost values from the 2014  
23 DSM Goals docket, then using the current 2019 system cost values. The

1 result is that projected DSM benefits have decreased more than 33% in the  
2 five-year period since DSM Goals were last set by the FPSC in 2014.

3  
4 As a result, it is both logical and appropriate that the DSM Goals that FPL is  
5 proposing in this docket are relatively low. However, FPL's customers will  
6 still be receiving significant amounts of energy efficiency. As discussed in  
7 my testimony, two of the drivers that are lowering FPL's system costs are: (i)  
8 increased energy (MWh) reductions from Florida Building Code and federal  
9 equipment manufacturing standards (collectively, Codes and Standards), and  
10 (ii) increased peak load (MW) reductions from these same Codes and  
11 Standards. The forecasted amount of energy efficiency to be delivered to  
12 FPL's customers from these Codes and Standards by the year 2029 (the last  
13 year in the ten-year time period addressed in this docket) is now much greater  
14 than was the case in either the 2009 or 2014 DSM Goals dockets.

15  
16 **II. THE DRIVERS OF POTENTIAL BENEFITS OF DSM ON FPL'S**  
17 **SYSTEM**

18  
19 **Q. Please discuss in general terms how DSM measures and programs can**  
20 **potentially benefit a utility system.**

21 A. DSM measures and programs (DSM) can potentially benefit a utility system  
22 in two basic ways. First, DSM's kWh reductions can potentially lower the  
23 utility system's variable costs by lowering the amount of energy (MWh) that

1 the utility must serve throughout the year, thus lowering the costs of supplying  
2 those MWh. Second, DSM's peak hour kW reductions can potentially lower  
3 the utility system's fixed costs by lowering the capacity (MW), and the cost of  
4 that capacity, needed by the utility to ensure reliability at its Summer peak  
5 hour, its Winter peak hour, and throughout the remainder of the year.  
6 Therefore, both DSM's kWh reductions and kW reductions can potentially  
7 contribute to DSM cost-effectiveness by avoiding (or deferring) variable  
8 and/or fixed system costs. These system costs that could potentially be  
9 avoided by DSM represent the potential benefits of DSM.

10 **Q. In regard to the benefits calculations for the Rate Impact Measure (RIM)**  
11 **and Total Resource Cost (TRC) preliminary cost-effectiveness screening**  
12 **tests, do both tests account for DSM benefits in regard to potentially**  
13 **avoidable variable and fixed system costs in the same way?**

14 A. Yes. Although the RIM and TRC tests differ in what cost impacts are  
15 accounted for in the calculation as discussed by FPL witness Andrew W.  
16 Whitley, the two tests use identical calculations for the benefits side of the  
17 benefit-to-cost preliminary screening calculation. Thus, the points discussed  
18 in the remainder of my testimony regarding the benefits side of DSM cost-  
19 effectiveness apply equally to both the RIM and TRC screening tests.

20 **Q. Are there certain factors that "drive" FPL's system costs that DSM could**  
21 **potentially avoid?**

22 A. Yes. For FPL's system, there are eight primary drivers of system costs that  
23 DSM could potentially avoid. There are four drivers of system variable costs

1 and another four drivers of system fixed costs. I will discuss each of these  
2 drivers and examine the trends of these costs, beginning in the next section of  
3 my testimony.

4  
5 In the examination of these trends, several different perspectives will be used  
6 that are appropriate for the specific driver being discussed. For example, one  
7 perspective that will be used for several of these drivers is to compare current  
8 (2019) forecasted costs for the years 2020 and 2029, the “bookend” first and  
9 last years for which DSM Goals are to be set in this docket, with forecasts  
10 FPL used in the two most recent DSM Goals dockets: the 2009 and 2014  
11 DSM Goals dockets.

12 **Q. Are the 2019 forecasts you will discuss in your testimony the same**  
13 **forecasts that FPL is using in this docket and in other aspects of FPL’s**  
14 **2019 resource planning work?**

15 A. Yes. The 2019 forecasts for fuel cost, environmental compliance costs, and  
16 load that I discuss are the same forecasts that FPL is using in all of its 2019  
17 resource planning work. FPL has also used these same forecasts in the  
18 analyses that support various recent FPSC filings, including those for: the  
19 2019 Ten-Year Site Plan (Site Plan), 2019 Standard Offer Contract, 2020  
20 Solar Base Rate Adjustment (SoBRA), 2020/2021 SolarTogether, and this  
21 2019 DSM Goals docket.

### III. TRENDS IN FPL SYSTEM VARIABLE COSTS

1  
2  
3 **Q. What are the most important types of variable costs that could potentially**  
4 **be avoided by DSM?**

5 A. Two types of costs comprise the vast majority of the variable system costs that  
6 are accounted for in FPL's resource planning work. These are: (1) system fuel  
7 costs and (2) system environmental compliance costs.

8 **Q. What are the most important drivers in FPL's projection of these two**  
9 **types of system variable costs?**

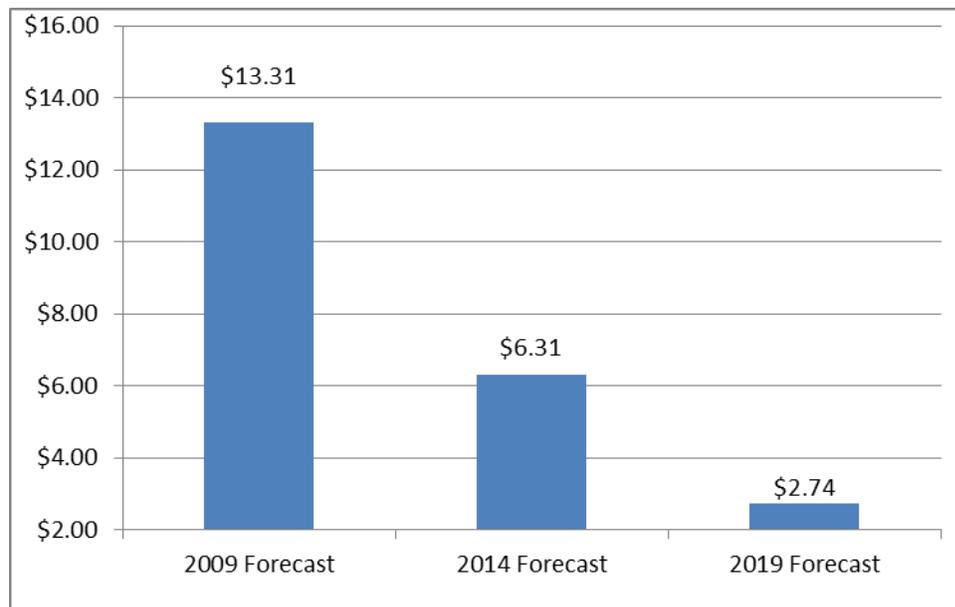
10 A. The four main drivers are: (i) fuel cost forecasts, (ii) environmental  
11 compliance cost forecasts, (iii) the efficiency with which fuel is converted into  
12 electricity by FPL's generating units, and (iv) the forecasted growth in the  
13 utility's energy (MWh) sales projected as net energy for load (NEL). I will  
14 discuss each of these drivers and the directional impact each has on potential  
15 DSM benefits in regard to kWh reductions lowering FPL system variable  
16 costs.

17 **Q. Please discuss how FPL's forecasts of natural gas cost from the two most**  
18 **recent DSM Goals dockets compare with FPL's current forecast.**

19 A. In this discussion, I will use the forecasted weighted-average cost (\$/mmBTU)  
20 values for Florida Gas Transmission (FGT) from FPL's forecasts in 2009,  
21 2014, and 2019. I will look first at the forecasted values for 2020 (the first  
22 year for which DSM Goals are to be set in this docket).

1 FPL's natural gas forecast from the 2009 DSM Goals docket for the year 2020  
 2 was \$13.31. In the 2014 DSM Goals docket, the gas cost forecast for 2020  
 3 had dropped to \$6.31, a decrease of more than 50%. The current gas forecast  
 4 for 2020 is \$2.74, a further decrease of more than 50% from 2014 to the  
 5 present. Over the ten-year period of 2009 to 2019, the forecasted cost of  
 6 natural gas for the year 2020 has decreased by almost 80%. A comparison of  
 7 these forecasted cost values is presented graphically in Figure 1 below.

8  
 9 **Forecasted Natural Gas Costs (\$/mmBTU) for the Year 2020**  
 10 **from 2009, 2014, and 2019 Fuel Cost Forecasts**

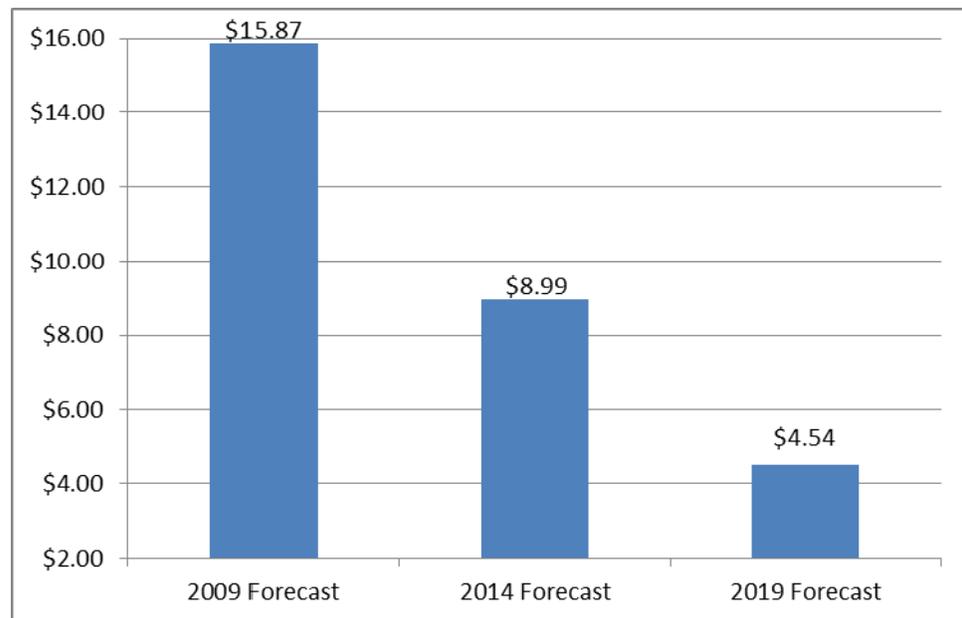


11  
 12 **Figure 1**

13  
 14 A very similar picture emerges when comparing these gas forecasts for the  
 15 year 2029 (the last year for which DSM Goals are to be set in this docket).  
 16 The 2009 DSM Goals docket used a forecasted cost for the year 2029 of

1           \$15.87. By the time of the 2014 DSM Goals docket, the gas cost forecast for  
 2           2029 had dropped to \$8.99, a decrease of more than 40% in forecasted natural  
 3           gas costs from 2009 to 2014. The current gas forecast for 2029 is \$4.54, a  
 4           further decrease of approximately 50% from 2014 to the present. Over the  
 5           ten-year period of 2009 to 2019, the forecasted cost of natural gas for the year  
 6           2029 has decreased by more than 70%. A comparison of these forecasted cost  
 7           values is presented graphically in Figure 2 below.

8  
 9                                   **Forecasted Natural Gas Costs (\$/mmBTU) for the Year 2029**  
 10                                   **from 2009, 2014, and 2019 Fuel Cost Forecasts**



11  
 12                                   **Figure 2**

13  
 14           A comparison of the 2009, 2014, and 2019 forecasted values for each year in  
 15           the 2020 – 2029 time period is presented in Exhibit SRS-1.

1 Thus, there has been a steady, and continuing, decrease in the forecasted cost  
2 of natural gas when examining the forecasts from the two most recent DSM  
3 Goals dockets and the forecast for the current docket. This is especially  
4 meaningful in regard to FPL because natural gas is the fuel that FPL burns on  
5 its margin (*i.e.*, it is the fuel that FPL burns for the last kWh it serves and for  
6 the kWh that DSM would potentially reduce) on FPL's system for virtually all  
7 annual hours.

8  
9 This reduction in natural gas costs is very beneficial for FPL's customers.  
10 However, it also significantly reduces the potential fuel savings benefit from  
11 DSM. Consequently, this examination of the first of the eight drivers that will  
12 be examined shows that the trend in this cost results in decreased cost-  
13 effectiveness for DSM kWh reductions.

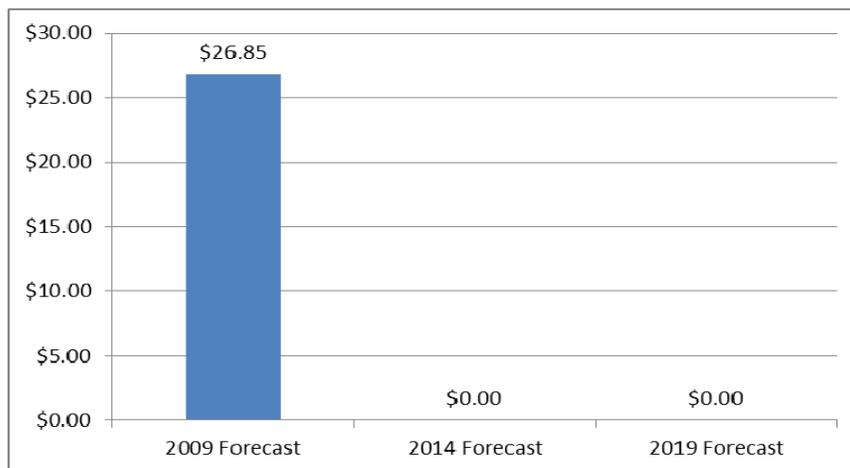
14 **Q. The second driver of system variable costs that you listed is**  
15 **environmental compliance costs. Please discuss how the forecasts of**  
16 **environmental compliance costs from the two most recent DSM Goals**  
17 **dockets compare with FPL's current forecast.**

18 A. In its resource planning work, FPL utilizes environmental compliance cost  
19 forecasts for carbon dioxide (CO<sub>2</sub>) that it receives annually from an  
20 independent consultant, ICF International. FPL has utilized ICF's CO<sub>2</sub>  
21 compliance cost forecasts in its resource planning work, and in all of its

1 resource planning-related FPSC filings since 2007.<sup>1</sup> During this time period,  
 2 the FPSC has consistently relied upon the use of ICF's CO<sub>2</sub> compliance cost  
 3 forecasts in FPL analyses.

4  
 5 In the 2009 DSM Goals docket, the forecasted CO<sub>2</sub> compliance cost (\$/ton)  
 6 for the year 2020 was \$26.85. However, by the 2014 DSM Goals docket, the  
 7 forecasted compliance cost value for 2020 had dropped to \$0. The current  
 8 forecasted compliance cost value for 2020 remains at \$0. So for the year  
 9 2020, the forecasted compliance costs have decreased by 100% (*i.e.*, they  
 10 have disappeared). These forecasted compliance cost values for the year 2020  
 11 are presented graphically in Figure 3.

12  
 13 **Forecasted CO<sub>2</sub> Compliance Costs (\$/ton) for the Year 2020**  
 14 **from 2009, 2014, and 2019 Compliance Cost Forecasts**

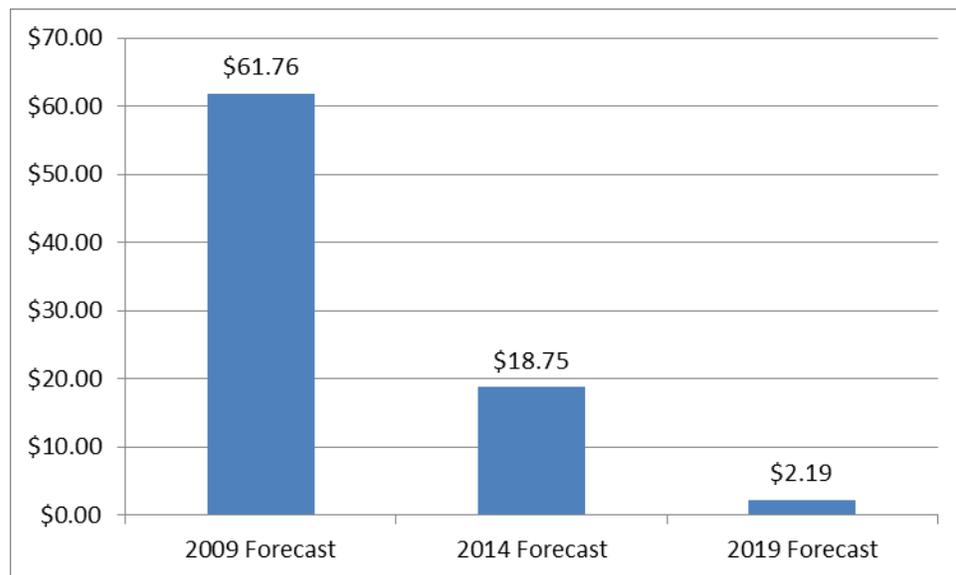


15  
 16 **Figure 3**

<sup>1</sup> Note as required by FPSC Order No. 2019-0062-PCO-EG, FPL and Duke Energy Florida have developed a single composite forecast of CO<sub>2</sub> compliance costs for use in this docket. This was also done for the 2014 DSM Goals docket. My discussion refers to the FPL component of that composite forecast.

1 A similar picture emerges when comparing the forecasted compliance cost  
2 values for the year 2029. The 2009 forecast projected a compliance cost for  
3 2029 of \$61.76. By 2014, the forecasted value for 2029 had dropped  
4 significantly to \$18.75. The current forecasted value for 2029 has further  
5 decreased to \$2.19. When comparing the 2009 and 2014 values for the year  
6 2029, the forecasted compliance cost decreased by 70%. Then by 2019, the  
7 forecasted compliance cost value for 2029 decreased again by almost 90%.  
8 Over the ten-year period, the forecasted compliance cost value for the year  
9 2029 decreased by 96%. These forecasted compliance cost values for the year  
10 2029 are presented graphically in Figure 4.

11  
12 **Forecasted CO<sub>2</sub> Compliance Costs (\$/ton) for the Year 2029**  
13 **from 2009, 2014, and 2019 Compliance Cost Forecasts**



14  
15 **Figure 4**

1 A comparison of the 2009, 2014, and 2019 forecasted compliance cost values  
2 for each year in the 2020 – 2029 time period is presented in Exhibit SRS-2.

3  
4 Therefore, similar to forecasted gas costs, there has been a steady and  
5 continuing decrease in projected CO<sub>2</sub> compliance costs. This reduction in  
6 compliance costs is also very beneficial for FPL's customers. However, it  
7 also significantly reduces the potential compliance cost savings benefit from  
8 DSM kWh reduction. Consequently, this examination of the second of the  
9 eight drivers shows that the trend in this cost also results in decreased cost-  
10 effectiveness for DSM kWh reductions.

11 **Q. The third driver you listed was the efficiency with which a utility system**  
12 **utilizes fuel to generate electricity. Please discuss.**

13 A. All else equal, the more efficient a utility system is in converting fuel into  
14 electricity, the lower the utility system fuel costs and system emissions will be  
15 because less fuel is needed, and fewer emissions are produced, to produce a  
16 kWh of electricity. Whereas the trend of steadily declining natural gas and/or  
17 CO<sub>2</sub> compliance costs are factors that affect most, if not all, electric utilities,  
18 the fuel efficiency of a utility's generation system is very specific to the  
19 individual utility.

20  
21 The efficiency at which FPL's fleet of gas-fueled<sup>2</sup> generating units (fleet)  
22 turns fuel into electricity, as measured by system average heat rates

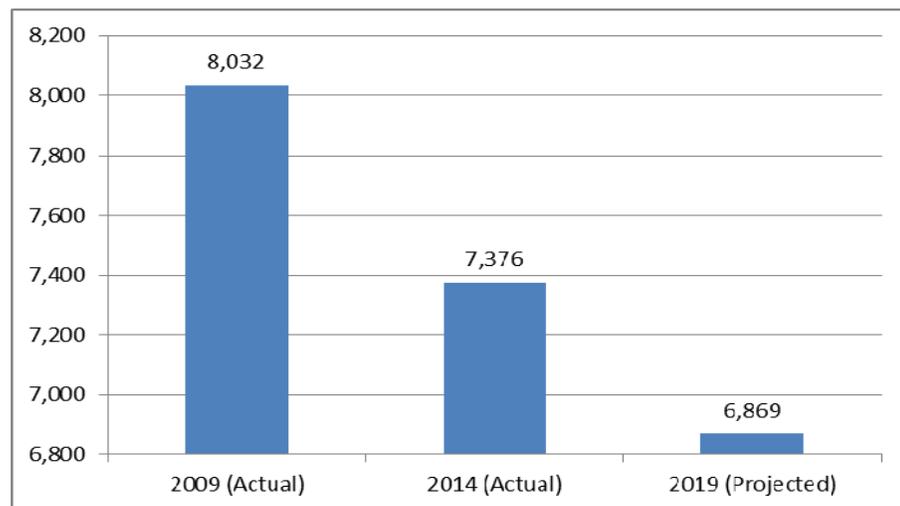
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<sup>2</sup> Some of FPL's gas-fueled generation units may occasionally burn a small amount of oil in certain circumstances when electrical demand is very high.

(BTU/kWh), has significantly improved and continues to improve. This has been accomplished through a number of proactive steps FPL has taken since at least 2001. One of these steps is to retire older, less fuel-efficient generating units and replace them with cost-effective modern generation technology with much improved fuel efficiency.

In 2001, the system average heat rate for FPL's gas-fueled fleet was 9,635 BTU/kWh. By the time of the 2009 DSM Goals docket, this heat rate for the FPL fleet had decreased to 8,032 BTU/kWh. The efficiency gains continued and, by the time of the 2014 DSM Goals docket, the heat rate had decreased to 7,376 BTU/kWh. Today, the projected heat rate for the FPL fleet is 6,869 BTU/kWh. The 2009, 2014, and 2019 values are presented graphically in Figure 5 and the derivation of these values is presented in Exhibit SRS-3.

**FPL Gas-Fueled Generation Fleet Average Heat Rates  
(BTU/kWh) for 2009, 2014, and 2019**



**Figure 5**

1 In the ten-year period from 2009 to the present, FPL's fleet has further  
2 improved the efficiency with which it burns natural gas by approximately  
3 15%. This improvement in fuel efficiency in such a relatively short time is  
4 truly significant, especially when one considers the approximate 20,000 MW  
5 size of FPL's gas-fueled fleet.

6  
7 Thus, FPL's system is not only using natural gas that costs much less, and  
8 facing much lower CO<sub>2</sub> compliance costs, than when prior DSM Goals were  
9 set, FPL's system is also burning less gas per each kWh it produces for its  
10 customers. Consequently, the fuel cost and compliance cost savings benefit  
11 that a DSM kWh reduction could potentially offer have been further reduced  
12 by the fuel efficiency improvements of FPL's fleet. This is again very  
13 beneficial for FPL's customers. However, it further reduces the potential  
14 benefits from DSM kWh reduction. As a result, the trend in this third of the  
15 eight drivers also results in decreased cost-effectiveness for DSM kWh  
16 reductions.

17 **Q. The fourth driver of system variable costs that you listed was a utility's**  
18 **projected growth in NEL (MWh). Is there a factor that affects FPL's**  
19 **forecasted NEL that is especially important in this particular docket?**

20 A. Yes. That factor is the steadily growing impact of Codes and Standards on the  
21 amount of energy a utility will need to produce to serve its customers. For a  
22 number of years, FPL has included in its annual Site Plan filings a projection  
23 of the impact of Codes and Standards on FPL's forecasted NEL (MWh) and

1 peak load (MW). FPL also presented its then-current projection of the impact  
2 of these Codes and Standards in its 2014 DSM Goals filing.

3  
4 A comparison of the 2009, 2014, and 2019 projected impacts of these  
5 Codes and Standards on FPL's forecasted NEL for the last year (2029) of the  
6 ten-year goals-setting period in this docket shows how the projected impact of  
7 the Codes and Standards has significantly increased. The comparison is based  
8 on forecasted impacts from the 2005 inception of these Codes and Standards.

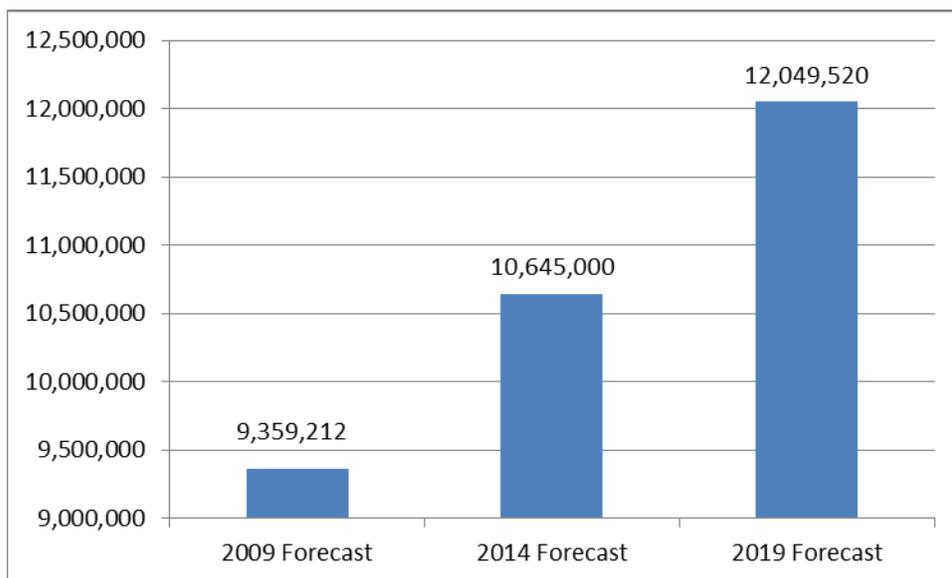
9  
10 In 2009, FPL projected that the amount of energy that would be reduced by  
11 Codes and Standards for the year 2029 was 9,359,212 MWh. In 2014, that  
12 projection increased to 10,645,000 MWh, which represents an approximately  
13 14% increase in the amount of energy projected to be decreased by Codes and  
14 Standards.

15  
16 FPL's current projection of the impact on NEL in the year 2029 by Codes and  
17 Standards has again increased to 12,049,520 MWh. This represents an  
18 additional increase of approximately 13% in the amount of energy projected  
19 to be decreased by Codes and Standards. Over the ten-year period from 2009  
20 to 2019, the projected reduction of FPL NEL for the year 2029 has increased  
21 by almost 29%.

22

1 The forecasted reductions in NEL due to Codes and Standards for the year  
2 2029 from the 2009, 2014, and 2019 forecasts are presented graphically in  
3 Figure 6.

4  
5 **Forecasted NEL (MWh) Reduction from Codes and Standards for the**  
6 **Year 2029 from 2009, 2014, and 2019 Forecasts**



7  
8 **Figure 6**

9 This graph shows that not only has the forecasted MWh reduction impact of  
10 the Codes and Standards been significant in each of the 2009, 2014, and 2019  
11 DSM Goals dockets, but also that the latest forecast shows a significantly  
12 larger MWh reduction impact than did the previous forecasts.

13

1       **Q.     What are the implications of this forecasted increased MWh reduction**  
2       **impact of Codes and Standards?**

3       A.     There are several implications. First, FPL's NEL forecasts account for the  
4       projected impacts of these Codes and Standards, and, consequently, the NEL  
5       forecasts have been lower than they otherwise would have been.

6  
7       Second, because FPL will be serving fewer MWh annually due to these  
8       Codes and Standards, there is less opportunity for DSM kWh reductions from  
9       utility DSM to be applied to FPL's system. This further lowers the potential  
10      benefits of kWh reductions from utility DSM. Consequently, the trend in this  
11      fourth of the eight drivers also results in decreased cost-effectiveness for DSM  
12      kWh reductions.

13  
14      Third, the Codes and Standards have removed potential energy reduction  
15      opportunities that otherwise might have been addressed by utility DSM  
16      programs. This results in lower Economic Potential and Achievable Potential  
17      values for utility DSM programs (which are addressed in the testimonies of  
18      FPL witnesses Whitley and Thomas R. Koch).

19  
20      Finally, and importantly for purposes of this DSM Goals docket, the  
21      Codes and Standards will deliver truly significant amounts of energy  
22      efficiency to FPL's customers. FPL's 2019 NEL forecast for the year 2029 is  
23      128,967,611 MWh. The previously mentioned 12,049,520 MWh of energy

1 reduction delivered through these Codes and Standards projected for 2029  
2 represents slightly more than 9% of the total energy FPL is projected to  
3 produce in that year.

4 **Q. Please briefly summarize the above discussion of how the forecasted**  
5 **values for the four main drivers of FPL system variable costs have**  
6 **changed and what the impact is in regard to DSM cost-effectiveness.**

7 A. There has been a trend of significant decreases in FPL system variable costs  
8 that are due to changes in each of the four drivers: (i) decreasing natural gas  
9 costs, (ii) decreasing CO<sub>2</sub> compliance costs; (iii) increasing efficiency with  
10 which FPL converts fuel into electricity, and (iv) decreasing amounts of MWh  
11 that no longer need to be generated due to Codes and Standards. In other  
12 words, all four drivers of FPL system variable costs have been steadily  
13 moving in the direction of lower costs.

14  
15 Lower costs for natural gas, lower environmental compliance costs, and  
16 increased efficiency in converting fuel into electricity are all very good for  
17 FPL's customers because these help to keep electric rates low. However,  
18 these lower system variable costs also result in significantly decreased  
19 benefits that DSM kWh reductions could potentially provide. As a result, the  
20 cost-effectiveness of DSM, particularly for customers served by FPL's system  
21 of fuel-efficient generating units, has also significantly decreased.

1           However, as previously mentioned, FPL's customers will continue to receive  
2           a very large amount of energy (MWh) reduction through the same Codes and  
3           Standards that are contributing to the reduced cost-effectiveness of utility  
4           DSM programs.

#### 6                           **IV.    TRENDS IN FPL SYSTEM FIXED COSTS**

7  
8           **Q.    What are the most important types of fixed costs that could potentially be**  
9           **avoided by DSM's kW reductions?**

10          A.    The three most important types of fixed costs on FPL's system that DSM  
11          could potentially avoid through kW reduction are: (1) capital cost of new  
12          generating units, (2) system firm gas transportation costs, and (3) capital costs  
13          of new system transmission and distribution (T&D) facilities.

14          **Q.    What are the most important drivers in FPL's projection of these three**  
15          **system fixed costs?**

16          A.    In regard to system fixed costs for the FPL system, the four main drivers are:  
17          (i) capital (\$/kW) costs for new generating units, (ii) annual costs for securing  
18          additional firm gas transportation for new CC unit additions, (iii) capital  
19          (\$/kW) costs for transmission and distribution (T&D) expenditures that would  
20          be needed without incremental DSM, and (iv) the forecasted growth in the  
21          utility's peak load (MW). I will discuss each of these drivers and the  
22          directional impact each has on potential DSM benefits in regard to kW  
23          reductions lowering FPL system fixed costs.

1       **Q.     Please describe the avoided generating unit that FPL is using in this**  
2       **doCKET for the preliminary cost-effectiveness screening of DSM measures.**

3       A.     FPL’s 2019 Site Plan shows a 2026 gas-fueled CC unit, and this CC unit is  
4       being used as the “avoided unit” in this doCKET for the preliminary cost-  
5       effectiveness screening of DSM measures. FPL also used a new CC unit as  
6       the avoided unit in both its 2009 and 2014 DSM doCKets, which, coincidentally,  
7       is helpful when comparing capital costs for the avoided units from the 2009,  
8       2014, and 2019 doCKets.

9       **Q.     Please discuss the current capital cost of this new 2026 CC unit and how**  
10       **this cost compares to the capital costs used for the avoided CC units in**  
11       **the 2009 and 2014 DSM Goals doCKets.**

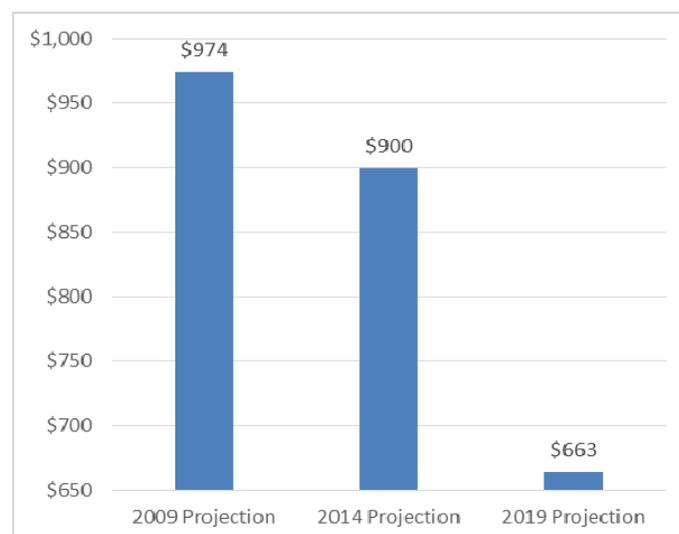
12       A.     In preliminary cost-effectiveness screening of DSM measures, FPL uses the  
13       projected capital cost of the avoided generating unit in terms of a \$/kW value  
14       that is presented for the year in which the screening is performed. That cost is  
15       then escalated year-by-year by a constant annual escalation rate up to the year  
16       that the avoided unit is projected to go into service. For example, in the 2009  
17       DSM Goals doCKET, the avoided unit was a 2019 CC unit. FPL used a capital  
18       cost of \$725/kW that was a 2009 cost value (*i.e.*, a value produced in the year  
19       the analysis was performed) and escalated that value to determine the capital  
20       cost of the CC unit in its in-service year of 2019. Assuming a capital cost  
21       escalation rate of 3% per year, the 2019 capital cost value is \$974/kW.

1 In order to compare on a common basis, the avoided CC unit capital costs  
 2 from the two most recent DSM Goals dockets (2009 and 2014) with the  
 3 current capital cost projection for the 2026 CC unit, the approach described  
 4 above was used. The capital costs are compared in terms of the in-service  
 5 years projected, respectively, in the 2009, 2014, and 2019 DSM Goals  
 6 dockets. (A projected 2019 in-service date was projected in both the 2009 and  
 7 2014 dockets and, as mentioned above, a 2026 in-service date is projected in  
 8 this docket.)

9  
 10 The result of this comparison of avoided CC unit capital costs for the 2009,  
 11 2014, and 2019 DSM Goals dockets is presented graphically in Figure 7. The  
 12 derivation of these CC capital costs is presented in Exhibit SRS-4.

13  
 14 **A Comparison of CC Avoided Capital Costs from 2009, 2014, and 2019**

15 **(\$/kW, In-Service Year \$)**



16  
 17 **Figure 7**

1 The projected capital costs of the CC units from each of the three dockets that  
2 DSM kW reductions might potentially avoid are: \$974/kW (in the 2009  
3 docket), \$900/kW (in the 2014 docket), and \$663/kW currently. Thus, the  
4 projected cost of a CC unit decreased by approximately 8% from the 2009  
5 docket to the 2014 docket, and has decreased again by approximately 26%  
6 from the 2014 docket to now. Overall, the projected cost of CC unit has  
7 decreased by approximately 32% from the 2009 DSM Goals docket.

8  
9 This significant decrease in the capital cost of the CC unit is again very  
10 beneficial for FPL's customers. However, it also reduces the potential  
11 benefits from DSM kW reductions. As a result, the trend in this fifth of the  
12 eight drivers also results in decreased cost-effectiveness for DSM.

13 **Q. The second driver of system fixed costs was the cost of firm gas**  
14 **transportation costs. Please discuss.**

15 A. As discussed above, in the 2009 and 2014 DSM Goals dockets, the avoided  
16 unit was a CC. When determining that a CC was the most economic  
17 generation option to meet future resource needs, FPL's evaluation included a  
18 projection of the amount of additional firm gas that would be needed on FPL's  
19 system to ensure that the new CC would have a reliable source of fuel, plus a  
20 projection of the cost for securing delivery of the firm gas. That cost was  
21 accounted for as a component in the fixed operations and maintenance (Fixed  
22 O&M) cost for the CC unit.

1 In the 2009 DSM Goals docket, the projected annual cost of needed firm gas  
2 transportation due to the new 2019 CC unit was \$155 million beginning in  
3 2019. In the 2014 DSM Goals docket, the projected annual cost of needed  
4 firm gas for the 2019 CC unit had decreased to \$60 million beginning in 2022.  
5 However, in 2019 FPL now projects that no additional firm gas transportation  
6 will be needed if a 2026 CC unit is added to FPL's system.

7  
8 The changes in projected firm gas transportation costs are primarily due to  
9 three factors. Two of these factors have been previously discussed. First, the  
10 increasing efficiency with which FPL's gas-fueled generation fleet uses fuel to  
11 produce electricity lowers the amount of natural gas that FPL needs. Second,  
12 the increasing impact of Codes and Standards lowers the amount of MWh that  
13 FPL needs to produce. The third factor is the very large amount of solar  
14 energy now being added to FPL's system. As shown in FPL's 2019 Site Plan,  
15 FPL now projects a total of approximately 8,053 MW (nameplate, AC) of  
16 photovoltaic (PV) generation facilities will be on FPL's system by the end of  
17 2028 (the last year addressed by the 2019 Site Plan). In addition, FPL plans to  
18 add another 1,200 MW of PV in 2029 (the last year for which DSM Goals will  
19 be set in this docket.)

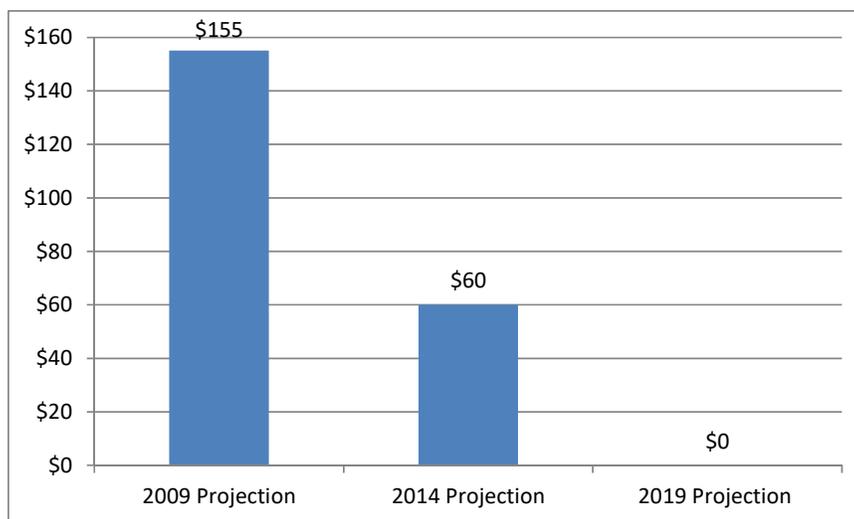
20  
21 Assuming a 26% annual capacity factor for the approximately 9,250 MW (=   
22 8,050 MW + 1,200 MW) of PV by the end of 2029, this results in a projection  
23 of approximately 21,000,000 MWh, or 21,000 GWh, of energy produced by

1 solar energy in 2029. This represents slightly more than 16% of the total  
 2 energy FPL is expected to produce in that year. Consequently, this amount of  
 3 energy will not need to be produced by gas-fueled generation.

4  
 5 The combination of these three factors result in no need for additional firm  
 6 gas to accompany the 2026 CC unit that is being used as the avoided unit for  
 7 the DSM preliminary screening of DSM measures in this docket. Thus, FPL  
 8 currently projects a \$0 fixed cost for additional firm gas transportation. A  
 9 comparison of the projected annual firm gas transportation costs due to the CC  
 10 avoided unit from the three DSM Goals dockets is presented graphically in  
 11 Figure 8.

### 13 A Comparison of Projected Costs for New Firm Gas

14 (\$ millions, nominal)



15  
 16 **Figure 8**

1           Once again, this decrease in FPL system costs is very beneficial for FPL's  
2           customers. However, it again reduces the potential benefits from DSM kW  
3           reductions. As a result, the trend in this sixth of the eight drivers also results  
4           in decreased cost-effectiveness for DSM.

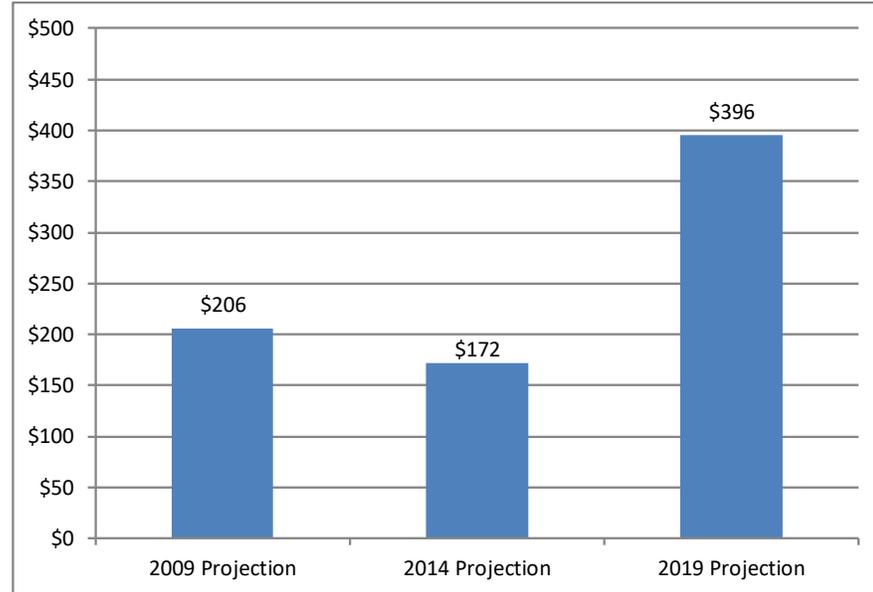
5           **Q.    The third main driver of system fixed costs is the capital cost (\$/kW) of**  
6           **T&D facilities. What is the trend in these costs?**

7           A.    In the previous two DSM Goals dockets, and again in this docket, the  
8           projected capital costs of T&D facilities that might potentially be avoided by  
9           DSM kW reductions were presented in terms of the \$/kW costs for the first  
10          year of each of the ten-year goals-setting periods. In the 2009 DSM Goals  
11          docket, the projected \$/kW capital costs combined for T&D was  
12          approximately \$206/kW. In the 2014 docket, the projected combined T&D  
13          capital cost decreased to \$172/kW. However, in the current docket, the  
14          projected combined T&D capital cost has increased to \$396/kW. These  
15          projected combined T&D capital costs are presented graphically in Figure 9.

16

1

### Projected T&D Capital Costs (\$/kW) from 2009, 2014, and 2019



2

3

**Figure 9**

4

5

The forecasts for the types of T&D projects, and their associated costs, that are potentially avoidable by DSM can vary significantly from year to year.

6

7

The current forecasts show a greater need for such projects at this point in time than in either 2009 or 2014. Thus, the forecasted costs (the numerator in

8

9

the \$/kW value) for such projects is currently higher than at the points in time

10

in which the 2009 or 2014 cost values were developed. In addition, the

11

forecasted growth in peak load is currently lower than in 2009 or 2014, which

12

reduces the denominator (kW) in the \$/kW T&D value, thus further increasing

13

the \$/kW projected cost.

14

15

Therefore, the net result for the seventh of the eight drivers is a projected

16

increase in the potential benefits from DSM kW reductions. As such, this

1 driver is the first of the seven drivers examined so far that is projected to  
2 increase DSM cost-effectiveness.

3 **Q. The fourth driver of system fixed costs is a utility's projected growth in**  
4 **peak load (MW). Does the projected impact of Codes and Standards also**  
5 **impact FPL's forecasted growth in peak load?**

6 A. Yes. As previously mentioned, FPL has included in its recent Site Plan filings  
7 a projection of the impact of Codes and Standards on FPL's forecasted peak  
8 load (MW) as well as on FPL's projected NEL. FPL also presented its then  
9 current projection of the impact of these Codes and Standards on peak load in  
10 its 2014 DSM Goals filing.

11

12 A comparison of the 2009, 2014, and 2019 projected impacts of these Codes  
13 and Standards on FPL's forecasted summer peak load for the last year (2029)  
14 of the ten-year goals-setting period in this docket shows how the projected  
15 impact of the Codes and Standards has significantly increased. In 2009, FPL  
16 projected that the Codes and Standards would reduce the peak load for the  
17 year 2029 by 2,209 MW from the inception of the Codes and Standards in  
18 2005. In 2014, the forecasted peak load reduction from the Codes and  
19 Standards increased to 3,705 MW, which represents an approximate increase  
20 of 68% increase in the peak load reduction from the Codes and Standards.

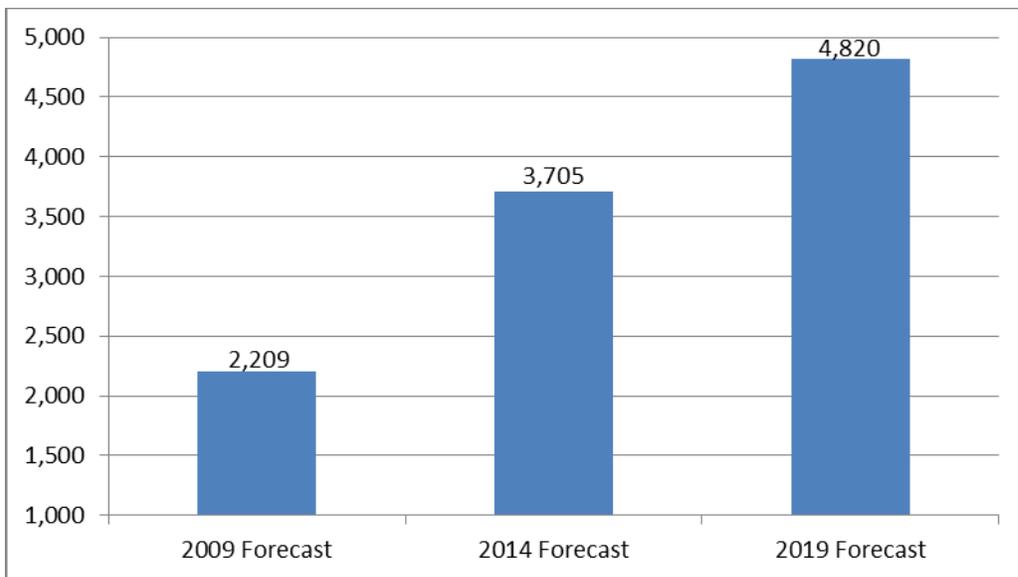
21

22 FPL's current projection of the impact of the Codes and Standards on the  
23 forecasted peak load for the year 2029 has again increased to a reduction of

1 4,820 MW. This represents an additional reduction in peak load from the  
 2 Codes and Standards of approximately 30%. Over the ten-year period from  
 3 2009 to 2019, the projected reduction of FPL's peak load for the year 2029  
 4 has increased by approximately 118%.

5  
 6 The forecasted reductions in peak load for the year 2029 from the 2009, 2014,  
 7 and 2019 forecasts are presented graphically in Figure 10.

8  
 9 **Forecasted Peak Load (MW) Reduction from Codes and Standards for**  
 10 **the Year 2029 from 2009, 2014, and 2019 Forecasts**



11  
 12 **Figure 10**

13  
 14 This graph shows that not only has the forecasted MW peak load reduction  
 15 impact of the Codes and Standards been significant in each of the 2009, 2014,

1 and 2019 forecasts, but that the latest forecast shows a significantly larger  
2 MW reduction impact than did the previous forecasts.

3 **Q. What are the impacts of the increased forecast of peak load (MW)**  
4 **reduction from Codes and Standards?**

5 A. The impacts of the forecasted peak load (MW) reduction from the Codes and  
6 Standards are similar to those previously discussed regarding MWh  
7 reductions. First, FPL's peak load forecasts account for the projected impacts  
8 of these Codes and Standards, and, consequently, the peak load forecasts have  
9 been lower than they otherwise would have been.

10

11 Second, because FPL will need to plan for smaller growth than would  
12 otherwise be the case without the Codes and Standards, there is less  
13 opportunity for DSM kW reductions to be applied to FPL's system. This  
14 further lowers the potential benefits of DSM kW reductions. Consequently,  
15 assuming all else equal, the impact of this eighth of the eight drivers of system  
16 costs is to once again decrease DSM cost-effectiveness.

17

18 Third, the Codes and Standards have removed potential peak load reduction  
19 opportunities that otherwise might have been addressed by utility DSM  
20 programs. This results in lower Economic Potential and Achievable Potential  
21 values for utility DSM programs (a topic that is further addressed in the  
22 testimonies of FPL witnesses Whitley and Koch).

1 Finally, and importantly for purposes of this DSM Goals docket, the Codes  
2 and Standards will deliver truly significant amounts of peak load reduction to  
3 FPL's customers. FPL's 2019 Summer peak load forecast for the year 2029 is  
4 28,008 MW. The amount of peak load reduction projected for 2029 from  
5 Codes and Standards is 4,820 MW, which represents slightly more than 17%  
6 of the forecasted Summer peak load.

7 **Q. Please briefly summarize the above discussion of how the forecasted**  
8 **values for the four main drivers of FPL's system fixed costs have changed**  
9 **and what the impact is in regard to DSM cost-effectiveness.**

10 A. The changes in forecasted values for three of the four drivers of FPL's system  
11 fixed costs has been to decrease those costs. Those changes include: (i)  
12 decreased capital (\$/kW) costs for new CC units, (ii) elimination of costs for  
13 additional firm gas, and (iii) decreased growth in peak load (MW) due to the  
14 increased effects of Codes and Standards. Conversely, the changes in  
15 forecasted values for a fourth driver of FPL's system fixed costs, T&D capital  
16 costs, is in the opposite direction. The 2019 projection of T&D costs is higher  
17 than the cost projections used in the 2009 and 2014 DSM Goals dockets.

1       **Q.     The current values for seven of the eight drivers of FPL’s system costs,**  
2       **compared to what those values were in the most recent two DSM Goals**  
3       **dockets, have moved in directions that result in overall lower FPL system**  
4       **costs while the current value for the remaining driver has moved in a**  
5       **direction to increase FPL system costs. When considering all eight**  
6       **drivers, what is the net impact on DSM’s potential benefits (i.e., the**  
7       **potential to lower system costs from both kWh and kW reductions)?**

8       A.     In order to answer that question, two analyses were performed to compare  
9       DSM benefits that were based on FPL system costs projected in the last  
10       (2014) DSM Goals docket versus DSM benefits that are based on FPL system  
11       costs projected in this docket (2019). For both analyses, a proxy DSM  
12       measure was used in which the following “per participant” impacts were  
13       assumed: (i) 1 kW Summer reduction, (ii) 1 kW Winter reduction, and (iii)  
14       1,000 kWh reduction. Both analyses also assumed that 1,000 participants  
15       would be signed up in the first year of the respective ten-year periods (in 2015  
16       for the 2014 DSM Goals-based analysis and in 2020 for the 2019 DSM Goals-  
17       based analyses).

18  
19       The 2014-based analysis used the same DSM preliminary cost-effectiveness  
20       screening tool (FPL’s CPF model) and inputs that was used in the 2014 DSM  
21       Goals docket, but with one exception. That exception is the use of the same  
22       discount rate that FPL is using in this docket (7.73%). The 2019-based

1 analysis uses the same CPF model with updated input values as discussed  
 2 throughout my testimony.

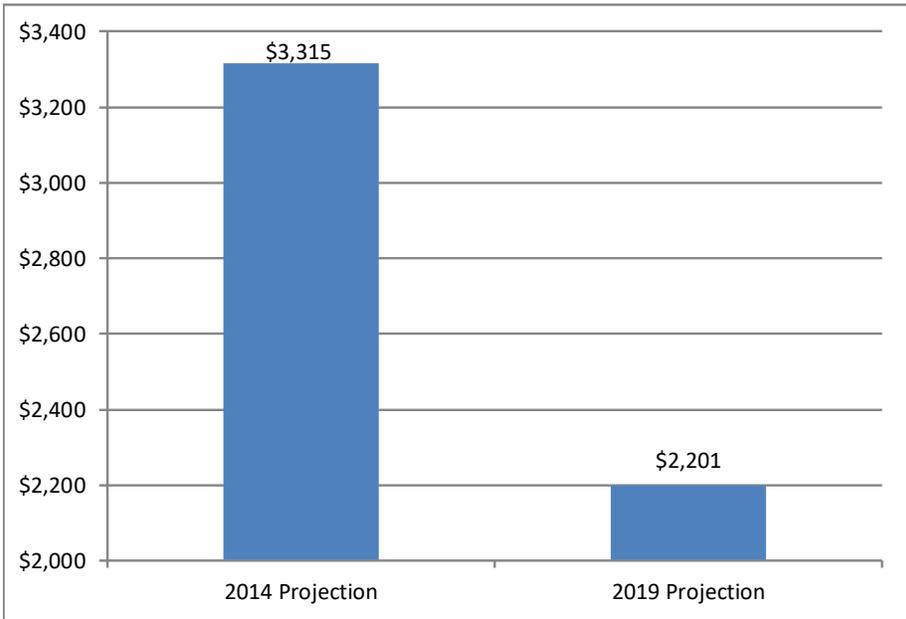
3  
 4 Using the system cost values from the 2014 DSM Goals docket, the projected  
 5 total benefits, presented in terms of cumulative present value of revenue  
 6 requirements (CPVRR), are approximately \$3.3 million. However, using the  
 7 current system cost values, the projected total CPVRR benefits have  
 8 decreased to approximately \$2.2 million. The results of this comparison are  
 9 presented graphically in Figure 11.

10

11 **Projected Total Benefits for both the RIM and TRC Screening Tests for**  
 12 **the Proxy DSM Measure Using 2014 and 2019 System Cost Values**

13

(CPVRR, \$000)



14

15

**Figure 11**

1 Exhibit SRS-5 provides the projected benefits for both calculations by  
2 individual category (avoided unit capital costs, etc.) that sum to the total  
3 values shown in Figure 11. As mentioned earlier, these benefits are identical  
4 for both the RIM and TRC preliminary screening tests. As shown in the  
5 exhibit, the net impact of the changes to all eight drivers of FPL's system  
6 costs is to reduce the projected benefits by slightly more than 33%. This is a  
7 very significant reduction in the potential benefits of DSM.

8  
9 This result is to be expected because of the lower values in seven of the eight  
10 drivers of FPL's system costs. Lower system costs are very good for FPL's  
11 customers because it helps keep electric rates low. However, these lower  
12 system costs automatically result in decreasing the benefits that kWh and kW  
13 reductions from utility DSM programs can potentially provide as shown by  
14 the results of this comparison.

## 15 16 V. CONCLUSIONS

17  
18 **Q. What conclusions do you draw from this examination of FPL system**  
19 **variable and fixed costs?**

20 **A.** I draw four conclusions from this examination:

- 21 1) In regard to the eight main drivers of FPL system costs that could  
22 potentially be avoided by DSM, seven of the eight drivers now result in  
23 lower FPL system costs. The impact of the remaining driver, forecasted

1 T&D costs, is more than overcome by the impacts of the other seven  
2 drivers. Consequently, the potential benefits of utility DSM measures on  
3 FPL's system, whether calculated in the RIM or TRC screening test, are  
4 now significantly lower than in the last two DSM Goals dockets.

5  
6 2) Because the potential benefits of these DSM measures have been  
7 significantly reduced, it is to be expected that fewer DSM measures now  
8 emerge from the Economic Potential analyses, and that lower Achievable  
9 Potential values now emerge, compared to the results from the last two  
10 DSM Goals dockets.

11  
12 3) Therefore, it is both logical and appropriate that FPL's proposed DSM  
13 Goals for the 2020 through 2029 time period are lower than FPL's  
14 proposed goals in the last two DSM Goals dockets. In fact, anyone who  
15 has been examining the trends in those system costs could have expected a  
16 lowering of proposed DSM Goals in 2019.

17  
18 4) Although it is logical and appropriate that FPL's proposed DSM Goals  
19 have been lowered based on current analyses using updated costs, it is  
20 important to keep in mind that FPL's customers are projected to receive  
21 significantly greater levels of both energy and peak load reductions by the  
22 year 2029 than was projected in the last two DSM Goals dockets due  
23 primarily to the higher forecasted impacts of Codes and Standards.

1 For example, in the 2014 DSM Goals docket, FPL's customers were  
2 projected to receive approximately 10,645,000 MWh of energy reduction  
3 from the Codes and Standards by 2029. The current projection is even  
4 higher: 12,049,520 MWh of energy reduction by 2029. In regard to peak  
5 load (MW) reduction, the projection for 2029 in the 2014 DSM Goals  
6 docket was a reduction of 3,705 MW from Codes and Standards.  
7 However, the current projection is even higher: 4,820 MW.

8  
9 Thus, one of the main factors that reduces the current economic viability  
10 of utility DSM is simultaneously increasing the amount of energy  
11 efficiency that FPL's customers will receive.

12 **Q. From both a resource planning perspective and from the perspective of**  
13 **someone who has analyzed DSM measures and programs on FPL's**  
14 **system since the 1980s, do you believe that the DSM Goals FPL is**  
15 **proposing are reasonable for FPL's customers?**

16 A. Yes. The fact that seven of the eight drivers of FPL's system costs are now  
17 significantly lower than they were in the 2014 DSM Goals docket is a very  
18 good thing for FPL's customers. However, lower system costs mean that  
19 DSM's potential benefits from avoiding system costs are automatically  
20 lowered as well. Consequently, the lower DSM Goals that FPL is proposing  
21 are simply a logical outcome and represent a very positive situation for FPL's  
22 customers. As such, FPL's proposed DSM Goals are logical, appropriate, and  
23 reasonable for FPL's customers.

1           In regard to the testimonies of FPL witnesses Whitley and Koch, assuming all  
2           else equal, lower DSM benefits result in two general impacts in regard to  
3           DSM analyses: (i) fewer DSM measures survive the preliminary economic  
4           screening, and (ii) incentive payment amounts that can be paid while still  
5           keeping a DSM measure cost-effective are lowered. Both of these impacts  
6           result in lower DSM Achievable Potential and lower DSM Goals.

7           **Q. Does this conclude your direct testimony?**

8           A. Yes.

1 BY MR. C. WRIGHT:

2 Q Dr. Sim, do you have exhibits identified as  
3 SRS-1 through SRS-5 attached to your direct testimony?

4 A Yes, I do.

5 Q Were those exhibits prepared by you or under  
6 your direct supervision?

7 A Yes.

8 Q Did you cause an errata to be filed on  
9 August 2nd, 2019, that corrected Exhibit SRS-4?

10 A Yes.

11 Q And with that correction, do you have any  
12 correction or changes to Exhibits SRS-1 through SRS-5?

13 A No, I do not.

14 MR. C. WRIGHT: Chairman, I would note that  
15 Exhibits SRS-1 through SRS-5 have been  
16 pre-identified as staff's Exhibit 20 through 24 on  
17 the comprehensive exhibit list.

18 CHAIRMAN GRAHAM: Duly noted.

19 BY MR. C. WRIGHT:

20 Q Dr. Sim, have you prepared a summary of your  
21 direct testimony?

22 A I have.

23 Q Would you please provide your summary?

24 A Yes, be glad to.

25 Good afternoon, Chairman Graham and

1 Commissioners.

2 My testimony examines why the projected  
3 benefits of DSM, those electric utility system costs  
4 that could potentially be avoided or deferred by DSM,  
5 has significantly declined regardless of whether the RIM  
6 or TRC test is used. Two examinations were performed.

7 In the first examination, I looked at eight  
8 main drivers of these utility system costs from the  
9 2009, 2014 and the current DSM goals docket.

10 Since the last goals docket, seven of the  
11 eight drivers have moved and are continuing to move in  
12 the direction of lower system costs. Very good news for  
13 FPL's customers. But lower system costs means less  
14 potential to lower system costs through DSM, which  
15 results in decreased DSM cost-effectiveness.

16 In the second examination, I looked at the  
17 combined impacts of those eight drivers, with a  
18 representative DSM measure. First with the 2014 docket  
19 forecast, and then with the current docket forecast.

20 The projected CPVRR benefits for this DSM  
21 measure for both the RIM and the TRC test were 3.3  
22 million with a 2014 forecast, but only 2.2 million with  
23 the current forecast. A truly significant 33 percent  
24 decrease in DSM benefits.

25 Because the potential benefits from DSM have

1 declined so much from the 2014 docket, it is both  
2 logical and appropriate that, one, fewer DSM measures  
3 now pass economic screening; two, DSM achievable  
4 potential is now significantly lower; and, three, FPL's  
5 proposed DSM goals are lower than the current goals.

6 In closing, however, it's important to keep in  
7 mind that two of the eight drivers that are lowering the  
8 cost-effectiveness of utility DSM, the peak and energy  
9 reductions from energy efficiency codes and standards,  
10 will also result in FPL's customers receiving  
11 significantly more energy efficiency from the codes and  
12 standards that was projected in the last goals dockets.  
13 Approximately 1,400 gigawatt hours and 1,100 megawatts  
14 more in 2029 alone.

15 The projected impacts of the codes and  
16 standards in the year 2029 represents approximately 9  
17 percent of FPL's NEL, and 17 percent of FPL's summer  
18 peak in that year.

19 Thank you.

20 **Q Thank you.**

21 MR. C. WRIGHT: I tender the witness for  
22 cross.

23 CHAIRMAN GRAHAM: Thank you.

24 Dr. Sim, welcome back.

25 THE WITNESS: Thank you.

1 CHAIRMAN GRAHAM: OPC.

2 MR. DAVID: No questions. Thank you.

3 CHAIRMAN GRAHAM: Mr. Moyle.

4 MR. MOYLE: I have a few questions.

5 EXAMINATION

6 BY MR. MOYLE:

7 Q Good afternoon, Dr. Sim. Good to see you.

8 A Good afternoon, sir.

9 Q So you were indicated as the person most  
10 knowledgeable about an exhibit, I think it's 101, that  
11 is FPL's response to staff Interrogatory No. 32. Are  
12 you familiar with that document? It relates to the  
13 accuracy of natural gas fuel price forecast.

14 A I do not have it in front of me, unless it is  
15 here.

16 Q I bet your counsel can put his hands on it. I  
17 have it as 101.

18 A Thank you.

19 Q Okay. Sir, can you identify this document  
20 that's before you now, please?

21 A Thank you. It appears to be staff's second  
22 set of interrogatories, Interrogatory No. 32.

23 Q Okay. And there is a third page that has a  
24 different color on it. Do you know why it has a  
25 different color?

1           A     I don't. I see that in the title in the upper  
2 right-hand corner, it says Interrogatory No. 32 Amended.  
3 It probably was printed in color, the amended version,  
4 and the original in black and white is my best guess.

5           **Q     Okay. So can you just describe in a narrative**  
6 **fashion what this exhibit shows?**

7           A     Well, let me first state that I have not seen  
8 this document before, nor did I create it, but I will  
9 try to answer questions that you have about it to the  
10 extent of my knowledge.

11          **Q     Well, that would be great. You are the system**  
12 **planning person for FPL, correct?**

13          A     But not the fuel cost forecast person at FPL.  
14 I use a fuel cost forecast in our resource planning.  
15 It's an input to our process. I don't create that  
16 input.

17          **Q     Okay. Well, give it the old college try for**  
18 **us, if you would.**

19          A     And your question would be, sir?

20          **Q     Explain this document.**

21          A     It appears to be a calculation of the  
22 difference between natural gas forecasts three, four and  
23 five years out versus the actual gas forecast. And what  
24 it shows is the forecast those three and four years out  
25 going back from 2011 and 2015 were overestimating the

1 price of natural gas. In other words, in simple terms,  
2 natural gas costs dropped faster than what we were  
3 forecasting.

4 Q And so, for example, in the natural gas price  
5 for 2016, the third box down the page, or the box  
6 closest to the bottom of the page, that shows in 2016  
7 for year five that the price was \$2.58; is that right?

8 A On the amended page, that's correct.

9 Q Okay. And then you would compare that -- to  
10 get the percent, you would compare that to the year  
11 2016, the middle box, where the price was \$6.57; is that  
12 right?

13 A That appears to be what was done, yes.

14 Q Okay. And how would the math -- do you think  
15 that math works out, 53 percent? Is that -- in my mind,  
16 it would say -- I was thinking, well, if it something  
17 doubles, it's 250, 258, and it goes to five bucks,  
18 that's 100 percent increase in my mind. But can you --  
19 can you help with that?

20 A I think the 53 percent is simply an average of  
21 the three values above it in the column, 61, 51 and 47.

22 Q Okay. And with respect to a material change  
23 in a gas price forecast, the question asked for an  
24 explanation of any forecast in excess of 20 percent.  
25 Would you believe that a change in 20 percent from a

1 **forecast to an actual is a material change?**

2 A I think it would depend upon how far out you  
3 are looking in a forecast. If you are looking a number  
4 of years, I think the variance in any forecast is going  
5 to be greater than if you are only looking at one or two  
6 years.

7 Q So let's just use what was asked here, a  
8 **forecast three to five years out, same question, but**  
9 **with the refinement that it's now asking about a three-**  
10 **to five-year timeframe out, would you believe a**  
11 **20-percent deviation is material?**

12 A Can you define material?

13 Q Well, I am not in the gas business. I mean,  
14 to have a significant impact on decisions and  
15 assumptions made.

16 A Well, I think it's material in terms of  
17 decisions we would make in the following sense: If we  
18 had forecast at the time we had made these forecasts  
19 more correctly how fast natural gas prices were  
20 dropping, we would have realized earlier how fast the  
21 cost-effectiveness of DSM was declining. We've seen it  
22 over time, but it surprised us as to how fast it  
23 declined, and is continuing to decline because we are  
24 continuing to see, among other things, the cost of  
25 natural gas dropping.

1           **Q     And as we sit here today, you can -- your**  
2 **trend line for natural gas is you continue to see it**  
3 **drop?**

4           A     Yes. We have not received any forecasts in  
5 the last five or six years that show that we are now  
6 forecasting an uptick in natural gas costs compared to  
7 the prior forecast.

8           **Q     And, indeed, what you are seeing -- because**  
9 **you get regular forecasts, do you not?**

10          A     We do.

11          **Q     And what you are seeing even today is a**  
12 **further forecast of natural gas prices going down?**

13          A     Well, let me be clear about that and try to  
14 augment the answer a bit.

15                 We typically get, at FPL, one forecast that is  
16 designated as the official long-term forecast. There  
17 are other forecasts after that point until the next year  
18 when we adopt a new long-term natural gas forecast, but  
19 those forecasts are generally out one, two years,  
20 something like that. We don't get long-term forecasts.

21          **Q     Okay. But the ones you are talking about, the**  
22 **one, two years, they are continuing at a downward trend;**  
23 **is that right?**

24          A     Either flat or downward. We are not seeing  
25 anything that shows that gas costs are going up.

1           Q     Okay.  And the impact on that with respect to  
2     what we are talking about now, energy efficiency  
3     measures, is it would mean that there are less energy  
4     efficiency measures that are cost-effective, because you  
5     are using very low natural gas prices, correct?

6           A     Yes.  All else equal, lower natural gas costs  
7     would lower the costs that could potentially be avoided  
8     by utility DSM.

9           Q     Okay.  And so if you took the information that  
10    was on this Exhibit 101, the third page, for example,  
11    and let's just -- let's just assume it went the other  
12    way around, that your natural gas price forecasts were  
13    in the \$2, \$3 range on the bottom, and then the actuals  
14    came in at \$6 and \$5, are you with me?

15          A     In other words, flipping the two?

16          Q     That's right.

17          A     Essentially.

18          Q     Yeah.

19          A     Yes.

20          Q     What impact would that have on energy  
21    efficiency measures?

22          A     All else equal, it would increase the  
23    cost-effectiveness of utility DSM.

24          Q     Okay.  And during the course of a period of  
25    time, do you all look at changes that have occurred with

1 respect to how it could impact energy efficiency  
2 measures?

3 A I am sorry, can you clarify what is changed?

4 Q Sure. Let's say there is a significant change  
5 in natural gas prices that right now you -- I am sure  
6 you have a projection that was used in this case,  
7 correct?

8 A That's correct.

9 Q All right. So let's say it was off by  
10 50 percent, and three years from now it's off by  
11 50 percent, do you all do anything to say, you know, we  
12 didn't really get this right on energy efficiency, we  
13 should make some adjustments because we came in front of  
14 the Commission and we were assuming, you know, this low  
15 level, and we were wrong by 50 percent. The actuals are  
16 much higher. You know, do you come in and make any kind  
17 of adjustments on energy efficiency, or just ride it out  
18 until the next goals docket?

19 A I think our history has been, when we've seen  
20 that DSM was suddenly more cost-effective than what we  
21 had projected in our last goals docket, we have gone and  
22 implemented more DSM than was called for in our goals.

23 We did that back -- and I may be off a year or  
24 two, around 2005 or 2006, we saw an increase in load  
25 that was unexpected, and we increased our goals from --

1 well, our goals were roughly 80 megawatts a year. We  
2 jumped up to actually implementing about 120 megawatts a  
3 year, and this was several years before we were  
4 scheduled to go in for goals, two years, I think, before  
5 we were scheduled to go in for goals.

6 Q And do you know if you did that just on your  
7 own volition, or did you bring that to the Commission  
8 and give them -- ask for their permission, or give them  
9 a heads-up that you were doing that, or do you recall  
10 that?

11 A We did it on our own volition. And if my  
12 recollection is correct, we informed staff informally  
13 that we were doing this.

14 Q All right. And with respect to natural gas  
15 variances like this, do you, in a similar way, make  
16 other adjustments to business decisions that are  
17 premised upon natural gas forecasts, for example, like  
18 the calculation of avoided costs?

19 A Yes. For standard offer contract, for natural  
20 gas prices, it's a major factor. It's important in  
21 standard offer contracts. It's important in evaluation  
22 of solar. So it ripples through quite a few things.

23 Q Okay. Just a couple of other questions.

24 With respect to the trend that you have told  
25 the Commission about, where energy efficiency is

1 becoming less competitive for a number of factors, have  
2 you looked or done any studies or analysis with respect  
3 to how that trend, whether it's carrying out in other  
4 states in a, kind of a uniform fashion, or is Florida  
5 different? Can you comment on that, if you would,  
6 please?

7 A Yes. I wouldn't say we had conducted studies.  
8 But FPL is part of a group -- I am one of them,  
9 Mr. Whitley is another one -- that meet twice a year in  
10 the Southeastern Electric Exchange IRP Task Force. And  
11 we spend two days together twice a year discussing  
12 trends in the industry, challenges we are facing.

13 And one of the things that has been prevalent  
14 regardless of what year we are meeting over the past  
15 five years has been utilities from Oklahoma to Ohio, to  
16 Georgia, all seeing essentially the same thing. That we  
17 are seeing declining benefits of utility DSM and  
18 declining cost-effectiveness of those.

19 Q And that's largely based on the building codes  
20 and the standards and measures, I think is the term of  
21 art used; is that right?

22 A That is a factor, but to go back to what all  
23 the utilities in all of the different states are seeing  
24 is we are seeing lower natural gas costs. We are seeing  
25 lower costs for combined cycle and combustion turbine

1 units. We are seeing generally lower environmental  
2 compliance costs for CO2. So those factors all  
3 utilities generally seeing. And codes and standards is  
4 certainly a factor because the federal portion of it is  
5 impacting everyone.

6 **Q If you had to rank them in terms of most**  
7 **significant impact to least significant impact out of**  
8 **natural gas, cost of carbon or environmental costs and**  
9 **standards, codes and standards, how would you rank them?**  
10 **Is natural gas number one, most significant?**

11 A I don't know because I haven't done such a  
12 ranking. I have would say the major ones would be cost  
13 of natural gas -- essentially everything I mentioned is  
14 pretty significant in terms of the impact. Codes and  
15 standards is very high. Combustion turbine and combined  
16 cycle prices dropping, that's significant. So they are  
17 all important.

18 **Q Yeah. And I know -- I was going -- I am going**  
19 **to ask you, like, why are costs of carbon coming down,**  
20 **if you know?**

21 A Essentially, the projected compliance cost of  
22 carbon is coming down because the utilities are taking  
23 advantage of the much lower cost for wind and solar.  
24 That is relieving pressure on CO2 targets that would  
25 have been set, for example, the former clean power plan

1 goals, that goal for the state of Florida, if memory  
2 services me correctly, was, I think, 919 pounds per  
3 megawatt hour to be met in the year 2030. FPL is  
4 already meeting that goal by at least 100 pounds per  
5 megawatt hour in 2018.

6 So it's factors like that across the country  
7 where utilities are taking advantage of cost-effective  
8 solar and cost-effective wind to the extent possible,  
9 which is driving down the projected emissions, and  
10 driving down the projected compliance costs.

11 **Q Okay. You talked about some comparisons you**  
12 **did from the last goals proceeding to this goals**  
13 **proceeding. And you would agree that it's a balancing**  
14 **act with respect to making a judgment about the impacts**  
15 **on rates compared to the energy efficiency measures?**  
16 **That's sort of the task that the Commission has before**  
17 **it, correct?**

18 A I would agree that is the decision to be made  
19 by the Commission, and I believe that they take a number  
20 of factors into play.

21 **Q So did you look at the rates that -- the rates**  
22 **charged at the last goals proceeding compared to the**  
23 **rates charged at this goals proceeding? And if so, what**  
24 **did they look like? Were the rates being charged now**  
25 **higher than the ones at the last goal proceeding? Were**

1     **they the same? Were they lower?**

2           A     Are you referring to electric rates or --

3           **Q     That's right.**

4           A     No, we did not, for the reason that I believe  
5     Mr. Koch discussed.

6                     Each goal setting, we start at zero. You  
7     start with a clean slate. You use updated forecasts and  
8     assumptions, and you proceed there. So what was  
9     projected in the last goals docket, essentially is  
10    immaterial. You are starting fresh this go around.

11          **Q     You remember the best time you ran in a mile,**  
12    **don't you?**

13          A     Yeah, actually, I do.

14          **Q     And you used an analogy to say, well, times**  
15    **change. I am older. I am not running as fast. But it**  
16    **does make some sense to go back and look back at what**  
17    **was happening at a prior point in time. I mean, you**  
18    **used it in your testimony, correct?**

19          A     Only in the sense that how costs have dropped  
20    from the previous goals period to now. But the idea is  
21    we are resetting goals, and we reset with what current  
22    forecasts and assumptions are.

23          **Q     Yeah, okay.**

24                     MR. MOYLE: Thank you. That's all I have.

25                     CHAIRMAN GRAHAM: Okay. FDACS.

1 EXAMINATION

2 BY MS. CORBARI:

3 Q Good afternoon, Dr. Sim.

4 A Good afternoon.

5 Q Good to see you again.

6 A Yes.

7 Q Were you present for Mr. Whitley's testimony?

8 A I was present for some of it, yes.

9 Q Did you hear me ask Mr. Whitley about FPL's  
10 last two need determinations?

11 A No, I did not.

12 Q Okay.

13 A It's actually a little bit difficult in the  
14 audience to hear all of the -- all of the questions.

15 Q Since the last goals proceeding, FPL has had  
16 two need determinations, is that correct?

17 A Dania Beach and Okeechobee, I believe.

18 Q You testified in both of those?

19 A I did.

20 Q And are you aware of the SoBRA dockets?

21 A Generally, yes.

22 Q Do you know how many megawatts solar FPL  
23 agreed to in those dockets?

24 A I think at the end of -- or by this year, we  
25 will have slightly over 1,000 megawatts of photovoltaics

1 on our system, and I think all but a handful are SoBRA  
2 related.

3 Q And both Okeechobee and Dania Beach were over  
4 1,000 megawatts as well?

5 A Yes.

6 Q Would you agree that the solar being  
7 implemented goes on the supply side of the conservation  
8 equation versus the demand side?

9 A Are you referring to the SoBRA solar?

10 Q FPL's solar.

11 A Yes. Those are generating units, so those  
12 would be supply options.

13 Q Okay. I'm probably going to ask you a  
14 question that has a very complicated answer, but I am  
15 going to try to make it simple.

16 If DSM is getting less cost-effective, as you  
17 just testified, and the Commission were to approve lower  
18 goals this time than in the prior goals proceeding, and  
19 FPL has added roughly over 3,000 megawatts in generation  
20 over the last five years, is that -- would lower goals  
21 mean even more generation being added in the next five  
22 years, or a faster need for generation?

23 A Not necessarily.

24 Q Can you explain?

25 A Yes, the -- again, let me preface this by

1 saying, I think comparing megawatt or gigawatt hour  
2 numbers from the prior goals to what would be set in  
3 this is not very meaningful, because we are starting  
4 from scratch and we are using assumptions that are now  
5 current, not five-year-old assumptions and forecasts.

6 But taking at face value what you just asked,  
7 summer megawatt goals were, I believe the number per  
8 year was roughly 52 megawatts per year. What we have  
9 proposed is 35 megawatts per year. It's a difference of  
10 17 megawatts. I don't think 17 megawatts on a system  
11 our size is going to significantly change the ability of  
12 DSM to impact our need for additional supply options,  
13 whether it was 17 megawatts up or 17 megawatts down.

14 **Q Would you agree that the last goals proceeding**  
15 **in 2014, the goals were lower than the 2009 goals?**

16 **A** Can you repeat the question, please?

17 **Q The goals set by the Commission in 2014 were**  
18 **lower than the goals set there 2009, would you agree?**

19 **A** Yes, they were.

20 **Q Yet FPL still needed to add over 3,000**  
21 **megawatts in generation, so all -- despite that, you**  
22 **can't look at last time's goals versus the proposed**  
23 **goals. Would lower goals mean a faster need for**  
24 **generation to be added to FPL's system?**

25 **A** Again, 17 megawatts is not going -- a year is

1 not going to make much of a difference in terms of the  
2 need for additional resources. And the idea is that you  
3 select what is the most cost-effective choice between  
4 supply-side options and demand-side options. That's my  
5 job at the utility, and Mr. Whitley's job at the  
6 utility.

7 **Q Thank you.**

8 MS. CORBARI: No further questions.

9 CHAIRMAN GRAHAM: I assume you have more than  
10 about 15 minutes worth of questions?

11 MR. MARSHALL: Yes.

12 CHAIRMAN GRAHAM: Let's take a break. Let's  
13 take a 10-minute break by that clock in the back,  
14 so it would be 20 till.

15 (Brief recess.)

16 (Transcript continues in sequence in Volume  
17 2.)

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## CERTIFICATE OF REPORTER

STATE OF FLORIDA     )  
COUNTY OF LEON     )

I, DEBRA KRICK, Court Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 20th day of August, 2019.



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DEBRA R. KRICK  
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