September 30, 2014

VIA E-FILING

Carlotta S. Stauffer
Director, Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket Nos. 130199-EI, 130200-EI, 130201-EI and 130202-EI

Dear Ms. Stauffer:

I have enclosed the Environmental Defense Fund's Post-hearing Statement and Brief to be filed in the above-referenced dockets. Should you have any questions regarding this filing, please contact me at (513) 226-9558.

Very truly yours,

s/John Finnigan

John Finnigan
Lead Counsel
Clean Energy Program
Environmental Defense Fund
128 Winding Brook Lane
Cincinnati, Ohio 45174
(513) 226-9558
jfinnigan@edf.org

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Commission Review of Numeric Conservation Goals Florida Power & Light Company	))))	DOCKET NO. 130199-EI
In re: Commission Review of Numeric Conservation Goals Duke Energy Florida, Inc.	))))	DOCKET NO. 130200-EI
In re: Commission Review of Numeric Conservation Goals Tampa Electric Company	))))	DOCKET NO. 130201-EI
In re: Commission Review of Numeric Conservation Goals Gulf Power Company	))))	DOCKET NO. 130202-EI

POST-HEARING STATEMENT AND BRIEF OF
ENVIRONMENTAL DEFENSE FUND

Florida uses more electricity than many other states in part because Florida has so many residential customers. Florida's hot summers cause high air conditioning loads and the large winter residential population causes high electricity use during the winter months. This makes conservation, load flexibility and self-generation very important for providing reliable, cost-effective electricity service to Florida's residents.

In 2008, the Legislature recognized the importance of conservation and renewable energy as a demand-side resource in an amendment to the Florida Energy Efficiency and Conservation

Act ("FEECA")[1]. The amendment directed the Commission to include goals "to encourage development of demand-side renewable energy resources."[2] The 2008 amendment also directed the Commission to consider the costs arising from state and federal regulations on greenhouse gas emissions in setting these goals.[3]

The Commission's most recent five-year goal setting process occurred in 2009. This was the first proceeding following the 2008 FEECA amendment which added renewable energy resources as a new demand-side energy resource. In the 2009 goal-setting case, the Commission found that distributed solar programs were not cost-effective but nevertheless ordered the utilities to spend ten percent of their conservation program expenditures on distributed solar programs as pilot programs.[4] Now the Commission must decide whether to continue, modify or terminate these programs. The Environmental Defense Fund ("EDF") recommends that the Commission continue the distributed solar programs, with modifications discussed below.

The Commission should consider various policy objectives in evaluating these programs. The policy guidance includes the 2008 FEECA amendments noted above – to encourage development of demand-side renewable resources and to consider compliance costs for reducing greenhouse gas emissions. The Florida State Comprehensive Plan provides additional policy guidance – the Plan added a new policy objective in 2008 to increase development of renewable

[1] Section 366.80-366.85, 403.519 Florida Statutes.

[2] Section 366.82(2), Florida Statutes.

[3] Section 366.82(3)(d), Florida Statutes.

[4] *See* Order No. PSC-09-855-FOF-EG, in Docket Nos. 080407-EG, 080408-EG, 080409-EG, 080410-EG, 080411-EG, 080412-EG, and 080413-EG, *In re: Commission review of numeric conservation goals*.

energy resources.[5] FEECA also requires that the Commission consider program cost-effectiveness.

Federal policy guidance also favors using more renewable energy resources. Florida will need to reduce its emissions under the EPA's Cross-State Air Pollution Rule, which was reinstated by a United States Supreme Court decision earlier this year.[6] Florida will also need to reduce carbon dioxide emissions from existing fossil fuel plants under the EPA's Clean Power Plan.[7] The EPA is scheduled to finalize the Clean Power Plan rules by June 1, 2015 and states will be required to submit state plans implementing the standards in compliance with the guidelines by June 30, 2016.[8] Importantly, the Clean Power Plan rules allow renewable energy resources to be used to comply with the plan's emission reductions targets.

Finally, the Commission should consider whether the distributed solar programs could assist Florida in taking actions to avoid the impacts of climate change and assist in reducing its greenhouse gas emissions to 1990 levels by 2050, as well as providing stability for customers by helping avoid energy supply disruptions and energy price increases.[9]

The utilities have opposed continuing the solar incentive program because they assert the programs were not cost-effective. None of the utilities, however, filed with the Commission any study or report on the operational impacts of distributed solar resources on their Florida service

---

[5] Tr. 917-919 (Fine).

[6] *EPA* v. *EME Homer City Generation, L. P.*, 134 S. Ct. 1584, 188 L. Ed. 2d 775 (2014).

[7] *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,* 79 Federal Register 117 (June 18, 2014) (amending 40 C.F.R. pt. 60).

[8] Presidential Memorandum (June 25, 2013) (available at: http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards) (last viewed September 18, 2014).

[9] Tr. 917 (Fine).

territories. On cross-examination, the utilities admitted that they did not do any such studies.[10] Notably, the utilities are not considering significant, but admittedly difficult to calculate, benefits which are significant and will, in EDF's opinion, result in cost tests calculations that show benefits to significantly exceed costs. Yet, the utilities have not done the research that is essential for understanding how distributed solar resources impact their distribution systems and to correctly measure the benefits provided by distributed solar resources under actual operating conditions. Without this research, the utilities' cost/benefit studies are incomplete and thus not appropriately the basis for policymaking because they failed to measure the actual benefits provided by distributed solar resources.

Mr. Floyd gave the following testimony on cross-examination:

> Q. * * * Does it sound reasonable for any company to consider studying the impacts of distributed solar on their system because of the different variables that have to be measured, because the local conditions may be different for each utility, and because distributed generation is coming down in price and starting to proliferate more?
>
> A. That seems like a reasonable thing to pursue.[11]

Mr. Duff testified that, if the distributed solar programs are continued, the programs should be designed to "provide opportunities to gather and analyze meaningful data and information regarding solar deployment."[12]

Mr. Koch testified that he is aware of solar impact studies in other states but he said there is a need for studies about the operational impacts of distributed solar resources in the Florida utilities' service territories. Mr. Koch testified as follows:

---

[10] Tr. 637-638 (Duff); Tr. 877 (Floyd).

[11] Tr. 879-880 (Floyd).

[12] Tr. 531 (Duff).

> Q. And I accept your statement that you did not personally investigate whether any such studies are underway in other states, but did you receive any information that other studies are underway in other states?
>
> A. I understand that there's other studies underway in other states. There's also -- because of the experiences they're having, the issue here is that those lessons or that information may or may not be directly applicable to FPL's network. And so the information, the idea of the R&D project is to gain Florida-specific information as far as those impacts are concerned on the network as we're configured here.[13]

Clearly, the lack of studies under actual operating conditions in Florida has caused utilities to under-value the benefits from distributed solar resources and thus to oppose continuing the solar incentive program. For example, Mr. Floyd testified that the distributed solar programs only provide benefits to non-participants in the form of lower fuel costs.[14] To the contrary, distributed solar resources provide much more extensive benefits to non-participants. Dr. Fine sponsored a meta-analysis study entitled *A Review of Solar PV Benefit and Cost Studies* by the Rocky Mountain Institute ("RMI")[15] and a Value of Solar Study by the Minnesota Department of Commerce.[16] These studies were critically reviewed by expert practitioners in the field, and showed that distributed solar resources provide extensive benefits to non-participants.

The RMI meta-analysis study reviewed 16 distributed solar cost/benefit studies performed around the country by utilities, national research laboratories and other organizations. The study showed that distributed solar resources provide benefits to non-participants in the following areas:

ENERGY

---

[13] Tr. 1331-1332 (Koch).

[14] Tr. 894 (Floyd).

[15] Exhibit 64.

[16] Exhibit 65.

- energy
- system losses

CAPACITY
- generation capacity
- transmission & distribution capacity
- installed capacity

GRID SUPPORT SERVICES
- reactive supply & voltage control
- regulation & frequency response
- energy & generator imbalance
- synchronized & supplemental operating reserves
- scheduling, forecasting, and system control & dispatch

FINANCIAL RISK
- fuel price hedge
- market price response

SECURITY RISK
- reliability & resilience

ENVIRONMENTAL
- carbon emissions (CO2)
- criteria air pollutants (SO2, NOx, PM)
- water
- land

SOCIAL
- economic development (jobs and tax revenues)

If the utilities would perform studies of the actual operating conditions of distributed solar resources in their Florida service territories, then they could observe and measure these categories of benefits which distributed solar provides to non-participants. This type of study would show whether distributed solar resources are actually cost-effective because it would measure all of the benefits to non-participants and would also measure how these resources perform under actual operating conditions in Florida.

Distributed solar resources should perform well here because Florida has abundant sunshine throughout the year. But Florida has not had a great deal of solar penetration and one obstacle has been the utilities failure to credit distributed solar resources with the full range of benefits they provide to non-participants. One avenue to redress this underutilization is a properly designed solar incentive program that credits distributed solar resources with the full

range of benefits they provide to non-participants. The cost/benefit analyses submitted by the utilities in this case are inadequate to measure cost-effectiveness because the utilities failed to do these studies under actual operating conditions in Florida and failed to evaluate the full range of non-participant benefits.

In rebuttal testimony, FP&L proposed that the Commission continue the distributed solar programs, but modify the programs to conduct a solar research study to elicit this type of information. Mr. Koch testified as follows:

> Q. Dr. Sim's rebuttal testimony recommends that the current solar PV pilot programs be discontinued because they are not cost effective and concludes that the money currently spent on those programs could be used more productively to conduct a limited Solar R&D project that would gather information on the system impacts of both DSM and non-DSM PV applications. Please describe FPL's Solar R&D proposal.
>
> A As Dr. Sim notes, SACE, Sierra Club and Environmental Defense Fund all recommend that further evaluation is needed to determine the costs and benefits of DSM PV. FPL believes that the cost and benefits of solar (or any resource option for that matter) are best assessed and considered in the context of a particular proposal for a resource option, rather than in an abstract or generic proceeding. It is clear without the benefit of any incremental research that the installed cost of utility scale PV is significantly lower than rooftop solar. However, FPL does agree that there is some merit to better understanding system impacts of different forms of solar. To this end, FPL proposes to continue and expand an initiative to gather data from a range of PV installations across the spectrum of applications and located throughout FPL's service territory, which would be metered and instrumented to gather information on issues such as the following:
>
> • impacts of PV installations on the transmission and distribution network based on the size of the PV installations, their location and loading conditions on the network;
>
> • energy output characteristics of different PV installations based on factors such as location, size and configuration;
>
> • differences in customer electric consumption patterns based on whether PV is located behind the customer's meter vs. grid-connected; and

• effects of locational diversity for PV installations.[17]

EDF agrees with FP&L's recommendation that additional research is urgently needed. In addition to the value attributes listed by Mr. Koch, EDF recommends that further study include examination of the full set of potential benefits and costs identified in the RMI meta-study. The Commission should appoint an independent expert to oversee the study. This will ensure that the full range of benefits is captured and that the valuation methodology provides an apples-to-apples basis for comparison and is consistent with best practices used in other states.

Distributed solar photo-voltaic ("PV") is a very promising technology for Florida utility customers and it would be consistent with state policy to continue developing this important resource. Costs for distributed solar resources are rapidly declining, and further cost declines are likely. The costs for installing distributed solar programs decreased during the time the program was in effect, as shown below (costs are per-watt)[18]:

Table: Costs for Distributed Solar Installations

Company	2011	2013
FP&L (residential)	$5.40	$4.10
Duke (residential)	$6.31	$5.19
TECO (commercial)	$5.50	$3.42
Gulf Power (commercial	$5.54	$3.42

Moreover, Duke witness Mr. Duff sponsored a report on average residential and non-residential installed prices of solar photo-voltaic ("PV") systems by state for the fourth quarter of 2013. This report shows that the leading state for the lowest cost for residential solar PV systems

[17] Tr. 1296-1297 (Koch).

[18] Tr. 929 (Fine).

is Wisconsin, with an installed cost under $3.00/watt.[19] In this case, the lowest cost for residential solar PV systems is FP&L's installed cost of $4.10/watt. Mr. Duff's report demonstrates that much lower costs should be available quickly in Florida as Florida solar developers gain scale.

The following state public utility commissions are in various stages of performing studies to measure the full benefits of distributed solar resources: Arizona,[20] Minnesota,[21] Nevada,[22] California,[23] South Carolina,[24] Utah[25] and New York.[26]

Florida would be well-served if the Commission continues the distributed solar programs, while also modifying the programs to add a research component to determine the full range of

---

[19] Exhibit 43.

[20] *In the Matter of Arizona Public Service Company's Application for Approval of Net Metering Cost Shift Soluiton,* Docket No. E-01345A-13-0248 (Opinion & Order) (December 3, 2013).

[21] Exhibit 65.

[22] *Nevada Net Energy Metering Impacts Evaluation,* Energy + Environmental Economics (July 2014), filed in *Investigation to Examine the Costs and Benefits of Net Metering in Nevada Pursuant to Section 26.5 of Assembly Bill 428,* Docket No. 13-07010, available at http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2013-7/39428.pdf and *see also* Addendum filed September 9, 2014, available at http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2013-7/41069.pdf (last viewed September 20, 2014).

[23] *Technical Potential for Local Distributed Photovoltaics in California,* Energy + Environmental Economics (March 2012), available at http://www.cpuc.ca.gov/NR/rdonlyres/8A822C08-A56C-4674-A5D2-099E48B41160/0/LDPVPotentialReportMarch2012.pdf (last viewed September 20, 2014).

[24] South Carolina Code, Act 236, Section 58-27-1050 (June 16, 2014) (emphasis added), available at: http://www.scstatehouse.gov/sess120_2013-2014/bills/1189.htm (last viewed August 21, 2014).

[25] *In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations*, Docket No. 13-035-184 (Report and Order) (August 29, 2014), available at: http://www.psc.utah.gov/utilities/electric/elecindx/2013/documents/26006513035184rao.pdf (last viewed September 30, 2014).

[26] *Proceeding on Motion of the Commission in Regard to Reforming Energy Vision,* Case No. 14-M-0101 (Order Instituting Proceeding (April 25, 2014).

costs and benefits under actual operating conditions in the utilities' Florida service territories. These studies should be forward looking, considering both costs and benefits in the near-term, five-year goal setting timeframe, and in the longer term of a decade and beyond. This would be consistent with Florida's policy objectives to encourage renewable energy development and to reduce greenhouse gas emissions over decadal times. The utilities acknowledge the need for this research and FP&L recommends that the Commission approve a research study. Several other states have completed or are beginning such studies. An independent expert, selected by the Commission, should supervise the study. This would allow the Commission to obtain a true reading of the benefits of distributed solar resources for non-participants. The research would also be valuable because it could inform utilities' integrated resource planning and their distribution system planning.

Statement of Basic Position

EDF: * The Commission should order: continuation of the distributed solar programs at the same or greater funding level; a comprehensive independently-supervised study of distributed solar benefits and costs; and incentive redesign to enhance program cost-effectiveness, increased customer participation, and greater deployment of distributed solar.*

Issues and Positions

Issue #11 – Should the Company's existing Solar Pilot Programs be extended and, if so, should any modifications be made to them?

EDF: *Yes. The Commission should order: continuation of the distributed solar programs at the same or greater funding level; a comprehensive independently-supervised study of distributed solar benefits and costs; and incentive redesign to enhance program cost-effectiveness, increased customer participation, and greater deployment of distributed solar.*

RESPECTFULLY SUBMITTED this 30th day of September, 2014

s/John Finnigan

John Finnigan
Lead Counsel
Clean Energy Program
Environmental Defense Fund
128 Winding Brook Lane
Cincinnati, Ohio 45174
(513) 226-9558
jfinnigan@edf.org

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy and correct copy of the foregoing was served on this 30th day of September, 2014, via electronic mail on:

Charles Murphy
Lee Eng Tan
Florida Public Service Commission
Office of the General Counsel
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850
ltan@psc.state.fl.us

Steven L. Hall
Florida Department of Agriculture and Consumer Services
Office of General Counsel
407 South Calhoun St., Suite 520
Tallahassee, FL 32399
Phone: 850-245-1000
FAX: 850-245-1001
Steven.Hall@FreshFromFlorida.com

Ken Hoffman
Florida Power & Light Company
215 S. Monroe Street, Suite 810
Tallahassee, Florida 32301-1858
Phone: (850) 521-3900
FAX: (850) 521-3939
ken.hoffman@fpl.com

Erik Sayler
Office of Public Counsel
c/o The Florida Legislature
111 W. Madison Street, Room 812
Tallahassee, FL 32399-1400
sayler.erik@leg.state.fl.us

Kevin Donaldson
Florida Power & Light Company
4200 West Flagler Street
Miami, FL 33134
Phone: (305) 442-5071
FAX: (305) 442-5435
kevin.donaldson@fpl.com

Paul Lewis, Jr.
John Burnett
Diane Triplett
Duke Energy
106 East College Avenue, Suite 800
Tallahassee, FL 32301-7740
Phone: (727) 820-5184
FAX: (727) 820-5041
john.burnett@duke-energy.com

paul.lewisjr@duke-energy.com
diane.triplett@duke-energy.com

Earthjustice
Alisa Coe/David Guest/Jill Tauber
111 S. Martin Luther King Jr. Blvd.
Tallahassee, FL 32301
Phone: 850-681-0031
FAX: 681-0020
Email: acoe@earthjustice.org
jtauber@earthjustice.org
dguest@earthjustice.org

Florida Industrial Power Users Group
Jon C. Moyle, Jr./Karen Putnal
c/o Moyle Law Firm
118 North Gadsden Street
Tallahassee, FL 32301
Phone: (850) 681-3828
FAX: 681-8788
Email: jmoyle@moylelaw.com

Gardner Law Firm
Robert Scheffel Wright/John T. La Via,
1300 Thomaswood Drive
Tallahassee, FL 32308
Phone: 850-385-0070
FAX: 850-385-5416
Email: schef@gbwlegal.com

Florida Solar Energy Industries Association
Colleen McCann Kettles, JD
FL
Phone: (321) 638-1004
Email: ckettles@fsec.ucf.edu

PCS Phosphate - White Springs James W. Brew / F. Alvin Taylor
c/o Brickfield Law Firm
1025 Thomas Jefferson St., NW, Eighth
Washington, DC 20007-5201
Phone: (202) 342-0800
FAX: (202) 342-0807
Email: jbrew@bbrslaw.com

Sierra Club
Diana Csank
50 F St. NW, 8th Floor
Washington, DC 20001
Phone: (202) 548-4595
FAX: (202) 547-6009
Email: Diana.Csank@sierraclub.org

Southern Alliance for Clean Energy
George Cavros
120 E. Oakland Park Blvd., Suite 105
Fort Lauderdale, FL 33334
Phone: 954-295-5714
FAX: 866-924-2824
George@cavros-law.com

Wal-Mart Stores East, LP and Sam's East, Inc.
Kenneth E. Baker
Energy Department
2001 SE 10th St.
Bentonville, AR 72716-0550
Phone: 479-204-0404
FAX: 479-273-6851
Ken.baker@walmart.com

Ausley Law Firm (13d)
J. Beasley/J. Wahlen/A. Daniels
Post Office Box 391
Tallahassee, FL 32302
Phone: 850-224-9115
FAX: (850) 222-7560
Email: jbeasley@ausley.com

Beggs & Lane
J. Stone/R. Badders/S. Griffin
P.O. Box 12950
Pensacola, FL 32591-2950
Phone: 850-432-2451
FAX: 850-469-3331
Email: srg@beggslane.com

Florida Power & Light Company (Juno 13i)
John Butler/Jessica Cano
700 Universe Blvd
Juno Beach, FL 33408
Phone: (561) 304-5639
FAX: (561) 691-7135
Email: John.Butler@FPL.com

Gulf Power Company
Robert L. McGee, Jr.
One Energy Place
Pensacola, FL 32520-0780
Phone: 850-444-6530
FAX: 850-444-6026
Email: rlmcgee@southernco.com

Hopping Law Firm
Gary V. Perko
P.O. Box 6526
Tallahassee, FL 32314
Email: Gperko@hgslaw.com

Keyes, Fox and Wiedman LLP
Kevin Fox/Justin Barnes/Rusty Haynes
436 14th St., Ste. 1305
Oakland, CA 94612
Phone: (510) 314-8201
Email: kfox@kfwlaw.com

OPOWER
Alex Lopez
FL
Phone: (571) 483 3042
Email: alex.lopez@opower.com

Southeast Energy Efficiency Alliance
Abby Schwimmer
FL
Phone: 404-602-9665
Email: aschwimmer@seealliance.org

Tampa Electric Company (13)
Paula K. Brown, Manager
Regulatory Coordination
P.O. Box 111
Tampa, FL 33602
Phone: 813-228-1744
FAX: 813-228-1770
Email: pkbrown@tecoenergy.com

The Alliance for Solar Choice
Anne Smart
595 Market St. 29th Floor
San Francisco, CA 94105
Phone: (408) 728-7166
Email: anne@allianceforsolarchoice.com

Mike Rogers
P.O. Box 12552
Tallahassee, Florida 32317
mrogers@comcast.com

s/John Finnigan

John Finnigan