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August 17, 2017

VIA E-PORTAL – ELECTRONIC FILING

Ms. Carlotta Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

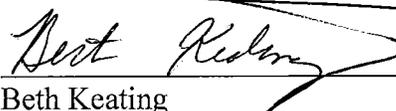
Re: Docket No. 20170002-EG – Energy Conservation Cost Recovery Clause

Dear Ms. Stauffer:

Attached for electronic filing, please find Florida Public Utilities Company's Petition for Approval of Conservation Factors, along with the Direct Testimony and Exhibits DNBM-1 and DNBM-2 of Ms. Danielle Mulligan.

Should you have any questions whatsoever, please do not hesitate to contact me. Thank you for your assistance in this matter.

Sincerely,



Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 South Monroe St., Suite 618
Tallahassee, FL 32301
(850) 521-1706

MEK

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Energy Conservation Cost) Docket No. 20170002-EG
Recovery Clause.)
_____) Filed: August 17, 2017

**PETITION FOR APPROVAL OF CONSERVATION
COST RECOVERY FACTORS FOR FLORIDA PUBLIC UTILITIES COMPANY**

Florida Public Utilities Company (“FPUC” or “the Company”) hereby files its petition for approval of its conservation cost recovery factors for its electric divisions related to the period January 2018 through December 2018. In support of this Petition, FPUC states:

1. The Company is an electric utility with its principal office located at:

Florida Public Utilities Company
1750 S 14th Street, Suite 200
Fernandina Beach FL 32034

2. The name and mailing address of the persons authorized to receive notices are:

Beth Keating, Esq.
Gunster, Yoakley & Stewart, P.A.
215 South Monroe Street, Suite 601
Tallahassee, Florida 32301-1839
(850) 521-1706

Mike Cassel
Director, Regulatory and Governmental Affairs
Florida Public Utilities Company
1750 S 14th Street, Suite 200
Fernandina Beach FL 32034
mcassel@fpuc.com

3. Pursuant to the requirements in this docket, FPUC, concurrently with the filing of this petition, files testimony and conservation cost recovery schedules (Exhibit DNBM-1) for the period, consisting of the reporting forms supplied by the Commission Staff. FPUC’s witness is also sponsoring Exhibit DNBM-2, which provides a description and notification of the Company’s new Distributed Battery Technology Pilot program that FPUC proposes to pursue under its existing Conservation Demonstration and Development program (CDD), as further set forth herein.

4. As reflected in the exhibit sponsored by Ms. Danielle N. B. Mulligan, the conservation costs for the Company's two electric divisions, on a consolidated basis, for the period ending December 2018 is projected to be \$722,850. The estimated conservation true-up amount for the prior period January 2017 to December 2017 is an over-recovery of \$65,183.
5. The total projected energy conservation costs, on a consolidated basis, that the Company seeks to recover during the twelve month period ending December 2018, are \$657,667. As such, the Company asks for approval of a consolidated levelized conservation cost recovery factor for this period of \$.00102 per KWH, which is appropriate based upon projected sales for the same period.
6. In addition, consistent with Order No. PSC-2015-0326-PAA-EG, issued August 11, 2015, the Company is notifying the Commission of its new Distributed Battery Technology Pilot program, which will be undertaken under the Company's existing CDD program. The purpose of the program, as more fully described in the testimony of Witness Mulligan, is to test whether battery storage can be effective in encouraging and facilitating integration of demand-side renewable energy systems into the Company's supply portfolio, but is anticipated to carry the added benefits of enhancing reliability for customers and lowering supply costs for the Company. The Company projects that expenditures on the program will be approximately \$75,000.

WHEREFORE, FPUC respectfully requests that the Commission enter an Order approving the Company's requested conservation cost recovery factor to be applied to customers' bills for the

period January 2018 through December 2018.

RESPECTFULLY SUBMITTED this 17th day of August, 2017.



Beth Keating
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Tallahassee, FL 32301
(850) 521-1706

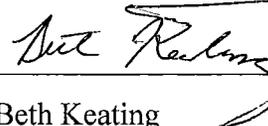
Attorneys for Florida Public Utilities Company

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by Electronic Mail to the following parties of record this 17th day of August, 2017, along with the referenced Testimony and Exhibit of Ms. Mulligan:

<p>Florida Public Utilities Company Mike Cassel 1750 S 14th Street, Suite 200 Fernandina Beach, FL 32034 mcassel@fpuc.com</p>	<p>Jon C. Moyle, Jr. Moyle Law Firm 118 North Gadsden St. Tallahassee, FL 32301 jmoyle@moylelaw.com</p>
<p>Kelley Corbari Florida Public Service Commission 2540 Shumard Oak Boulevard Tallahassee, FL 32399 kcorbari@psc.state.fl.us</p>	<p>Office of Public Counsel J.R. Kelly/Charles Rehwinkel/Patricia Christensen, Esq. c/o The Florida Legislature 111 West Madison Street, Room 812 Tallahassee, FL 32399-1400 Kelly.JR@leg.state.fl.us christensen.patty@leg.state.fl.us Rehwinkel.Charles@leg.state.fl.us</p>
<p>Paula K. Brown Tampa Electric Company P.O. Box 111 Tampa, FL 33601-0111 regdept@tecoenergy.com</p>	<p>Dianne M. Triplett Duke Energy, Inc. P.O. Box 14042 St. Petersburg, FL 33733-4042 dtriplett@duke-energy.com</p>
<p>Matthew Bernier Duke Energy, Inc. 106 E. College Ave., Suite 800 Tallahassee, FL 32301 Matthew.Bernier@duke-energy.com</p>	<p>James D. Beasley J. Jeffrey Wahlen Ausley & McMullen P.O. Box 391 Tallahassee, FL 32302 jbeasley@ausley.com jwahlen@ausley.com</p>
<p>Russell A. Badders Steven R. Griffin Beggs & Lane P.O. Box 12950 Pensacola, FL 32591-2950 srg@beggslane.com rab@beggslane.com</p>	<p>Ken Rubin John T. Butler Maria Moncada. Florida Power & Light Company 700 Universe Boulevard Juno Beach, FL 33408-0420 Ken.rubin@fpl.com john.butler@fpl.com maria.moncada@fpl.com</p>

<p>Mr. Ken Hoffman 215 South Monroe Street, Suite 810 Tallahassee, FL 32301-1858 ken.hoffman@fpl.com</p>	<p>Robert Scheffel Wright, Esq//John T. LaVia, c/o Gardner Law Firm 1300 Thomaswood Drive Tallahassee, FL 32308 schef@gbwlegal.com jlavia@gbwlegal.com</p>
<p>Rhonda J. Alexander Gulf Power Company One Energy Place Pensacola, FL 32520-0780 rjalexad@southernco.com</p>	<p>James W. Brew Laura Wynn Stone Mattheis Xenopoulos & Brew, PC Eighth Floor, West Tower 1025 Thomas Jefferson Street, NW Washington, DC 20007 jbrew@smxblaw.com lwynn@smxblaw.com</p>
<p>Jeffrey A. Stone General Counsel Gulf Power Company One Energy Place Pensacola, FL 32520-0780 jastone@southernco.com</p>	



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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 20170002-EG - In Re: Energy Conservation Cost Recovery Clause
DIRECT TESTIMONY OF DANIELLE N.B. MULLIGAN

On behalf of

Florida Public Utilities Company

Q. Please state your name, occupation and business address.

A. My name is Danielle Mulligan. I am the Marketing and Conservation Manager for Florida Public Utilities Company. My business address is 450 S. Charles Richard Beall Blvd, DeBary, Florida 32713.

Q. Describe briefly your background and business experience?

A. I graduated from the University of Phoenix in 2003 with a Bachelor of Science in Business Marketing. I have been employed by FPUC since 2010, initially serving as an Energy Conservation Representative for three years before being promoted to the position of Marketing Manager. On June 1, 2017, I was given the additional responsibility of overseeing the Energy Conservation department, which entails management of the Company's electric and gas conservation programs to ensure compliance with all Florida Public Service Commission (FPSC) rules as it pertains to Energy Conservation programs. I am also involved in the preparation of various conservation program related regulatory filings.

Q. Are you familiar with the electric conservation programs of the Company and costs which have been, and are projected to be, incurred?

A. Yes.

Q. What is the purpose of your testimony in this docket?

A. To describe generally the expenditures made and projected to be made in implementing, promoting, and operating the Company's electric conservation programs. This will include recoverable costs incurred in January through

1 June 2017 and projections of program costs to be incurred from July through
2 December 2017. It will also include projected electric conservation costs for
3 the period January through December 2018, with a calculation of the
4 Conservation Adjustment Factor to be applied to the Company's consolidated
5 electric customers' bills during the collection period of January 1, 2018
6 through December 31, 2018.

7 **Q. Are there any exhibits that you wish to sponsor in this proceeding?**

8 A. Yes. The Company wishes to sponsor as exhibits Schedules C-1, C-2, C-3, C-4, C-5
9 and Exhibit DNBM-2. Exhibit DNBM-2 contains a description of a Distributed
10 Battery Technology Pilot program that the Company wishes to pursue through its
11 Conservation Demonstration and Development program (CDD). FPU wishes to test
12 the viability of using battery storage technology to improve customer's electric
13 system reliability and resiliency. In addition, the pilot will test whether the
14 technology can be used to lower FPU's power supply cost and test the viability of
15 using storage batteries to integrate renewables into FPU's power purchase portfolio.
16 Per the Company's 2015 Demand Side Management Plan (approved by Order No.
17 PSC-2015-0326-PAA-EG), FPUC will notify the Florida Public Service Commission
18 of any CDD project that exceeds \$15,000. The Company projects \$75,000 will be
19 spent on the pilot program and has attached Exhibit DNBM-2 to this filing as
20 notification.

21 **Q. Has the Company prepared summaries of its electric conservation programs**
22 **and the costs associated with these programs?**

23 A. Yes. Summaries of the electric conservation programs as approved in Docket No.
24 150089-EG, the petition for approval of the demand-side management plan, are
25 contained in Schedule C-5 of Exhibit DNBM-1. Included are the Residential Energy

1 Survey Program, the Residential Heating and Cooling Efficiency Program, the
2 Commercial Heating and Cooling Efficiency Program, the Commercial Chiller
3 Upgrade Program, the Electric Conservation Demonstration and Development
4 Program, the Low Income Energy Outreach Program, the Commercial Reflective
5 Roof Program and the Commercial Energy Consultation Program.

6 **Q. Has the Company prepared schedules that show the expenditures associated**
7 **with its electric conservation programs for the periods you have mentioned?**

8 A. Yes, Schedule C-3, Pages 1 and 1A of 5, Exhibit DNBM-1 shows actual expenses for
9 the months January through June 2017. Projections for July through December 2017
10 are also shown on Schedule C-3, Pages 1 and 1A. Projected expenses for the
11 January through December 2018 period are shown on Schedule C-2, Page 1 of 3 of
12 Exhibit DNBM-1.

13 **Q. Has the Company prepared schedules that show revenues for the period**
14 **January through December 2017?**

15 A. Yes. Schedule C-4 shows actual revenues for the months January through June 2017
16 and projected revenues for July through December 2017 and January through
17 December 2018.

18 **Q. Has the Company prepared a schedule that shows the calculation of its**
19 **proposed Conservation Adjustment Factor to be applied during billing periods**
20 **from January 1, 2018 through December 31, 2018?**

21 A. Yes. Schedule C-1 of Exhibit DNBM-1 shows these calculations. Net program cost
22 estimates for the period January 1, 2018 through December 31, 2018 are used. The
23 estimated true-up amount from Schedule C-3 (Page 4 of 5, Line 11) of Exhibit
24 DNBM-1, being an over-recovery, was added to the total of the projected costs for
25 the twelve-month period. The total projected recovery amount, including estimated

1 true-up, was then divided by the projected Retail KWH Sales for the twelve-month
2 period ending December 31, 2018. The resulting Conservation Adjustment Factor is
3 shown on Schedule C-1 (Page 1 of 1) of Exhibit DNBM-1.

4 **Q. What is the Conservation Adjustment Factor necessary to recover these**
5 **projected net total costs?**

6 A. The Conservation Adjustment Factor is \$.00102 per KWH.

7 **Q. Does this conclude your testimony?**

8 A. Yes.

ENERGY CONSERVATION ADJUSTMENT
SUMMARY OF COST RECOVERY CLAUSE CALCULATION

FOR MONTHS January-18 THROUGH December-18

1.	TOTAL INCREMENTAL COSTS (SCHEDULE C-2,PAGE 1, LINE 33)	<u>722,850</u>
2.	TRUE-UP (SCHEDULE C-3,PAGE 4,LINE 11)	<u>(65,183)</u>
3.	TOTAL (LINE 1 AND LINE 2)	<u>657,667</u>
4.	RETAIL KWH SALES	<u>644,860,920</u>
5.	COST PER KWH	<u>0.00101986</u>
6.	REVENUE TAX MULTIPLIER *	<u>1.00072</u>
7.	ADJUSTMENT FACTOR ADJUSTED FOR TAXES (LINE 5 X LINE 6)	<u>0.00102100</u>
8.	CONSERVATION ADJUSTMENT FACTOR- (ROUNDED TO THE NEAREST .001 CENTS PER KWH)	<u>0.102</u>

COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION

SCHEDULE C-2
PAGE 1 OF 3

ESTIMATED CONSERVATION PROGRAM COSTS

FOR MONTHS January-18 THROUGH December-18

A.	ESTIMATED EXPENSE BY PROGRAM	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1.	Common	32,642	32,642	32,642	32,642	32,642	32,642	32,642	32,642	32,642	32,642	32,642	32,642	391,700
2.	Residential Energy Survey Program	8,717	8,717	8,717	8,717	8,717	8,717	8,717	8,717	8,717	8,717	8,717	8,717	104,600
3.	Commercial Energy Survey	0	0	0	0	0	0	0	0	0	0	0	0	0
4.	Low Income Program	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	16,500
5.	Commercial Heating & Cooling Upgrade	925	925	925	925	925	925	925	925	925	925	925	925	11,100
6.	Residential Heating & Cooling Upgrade	3,221	3,221	3,221	3,221	3,221	3,221	3,221	3,221	3,221	3,221	3,221	3,221	38,650
7.	Commercial Indoor Efficient Lighting Rebate	0	0	0	0	0	0	0	0	0	0	0	0	0
8.	Commercial Window Film Installation Program	0	0	0	0	0	0	0	0	0	0	0	0	0
9.	Commercial Chiller Upgrade Program	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	18,550
10.	Solar Water Heating Program	0	0	0	0	0	0	0	0	0	0	0	0	0
11.	Solar Photovoltaic Program	0	0	0	0	0	0	0	0	0	0	0	0	0
12.	Demonstration and Development	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	75,000
13.	Affordable Housing Builders and Providers	0	0	0	0	0	0	0	0	0	0	0	0	0
14.	Commercial Reflective Roof Program	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	20,650
15.	Commercial Energy Consultation	3,842	3,842	3,842	3,842	3,842	3,842	3,842	3,842	3,842	3,842	3,842	3,842	46,100
16.	TOTAL ALL PROGRAMS	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	722,850
17.	LESS AMOUNT INCLUDED IN RATE BASE													
19.	RECOVERABLE CONSERVATION EXPENSES	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	60,238	722,850

EXHIBIT NO. _____
DOCKET NO. 20170002-EG
FLORIDA PUBLIC UTILITIES COMPANY
(DNBM-1)
PAGE 2 OF 20

ESTIMATED CONSERVATION PROGRAM COSTS PER PROGRAM

FOR MONTHS January-18 THROUGH December-18

PROGRAM NAME	LABOR & PAYROLL	ADVERTISING	LEGAL	OUTSIDE SERVICES	VEHICLE COST	MATERIALS & SUPPLIES	TRAVEL	GENERAL & ADMIN.	INCENTIVES	OTHER	SUB TOTAL	PROGRAM REVENUES	TOTAL
1 Common	265,000	45,000	10,000	15,000	6,500	6,000	32,000	0	0	12,200	391,700	0	391,700
2 Residential Energy Survey Program	60,000	5,100	0	20,000	3,000	1,500	10,000	0	0	5,000	104,600	0	104,600
3 Commercial Energy Survey	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Low Income Program	700	0	0	15,000	100	500	200	0	0	0	16,500	0	16,500
5 Commercial Heating & Cooling Upgrade	100	10,000	0	0	0	0	0	0	1,000	0	11,100	0	11,100
6 Residential Heating & Cooling Upgrade	2,000	6,000	0	0	150	100	300	0	30,000	100	38,650	0	38,650
7 Commercial Indoor Efficient Lighting Rebate	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Commercial Window Film Installation Program	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Commercial Chiller Upgrade Program	6,000	10,000	0	0	350	100	1,000	0	1,000	100	18,550	0	18,550
10 Solar Water Heating Program	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Solar Photovoltaic Program	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Demonstration and Development	5,000	0	0	68,500	250	150	1,000	0	0	100	75,000	0	75,000
13 Affordable Housing Builders and Providers	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Commercial Reflective Roof Program	4,500	10,000	0	0	150	100	800	0	5,000	100	20,650	0	20,650
15 Commercial Energy Consultation	25,000	100	0	15,000	1,200	500	4,000	0	0	300	46,100	0	46,100
16 TOTAL ALL PROGRAMS	368,300	86,200	10,000	133,500	11,700	8,950	49,300	0	37,000	17,900	722,850	0	722,850
17 LESS: BASE RATE RECOVERY													
18 NET PROGRAM COSTS	368,300	86,200	10,000	133,500	11,700	8,950	49,300	0	37,000	17,900	722,850	0	722,850

COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION

SCHEDULE C-2
PAGE 3 OF 3

SCHEDULE OF CAPITAL INVESTMENT, DEPRECIATION & RETURN

ESTIMATED FOR MONTHS January-18 THROUGH December-18

PROGRAM NAME:

	BEGINNING OF PERIOD	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1. INVESTMENT	NONE													
2. DEPRECIATION BASE														
3. DEPRECIATION EXPENSE														
4. CUMULATIVE INVESTMENT														
5. LESS: ACCUMULATED DEPRECIATION														
6. NET INVESTMENT														
7. AVERAGE NET INVESTMENT														
8. RETURN ON AVERAGE INVESTMENT														
9. EXPANSION FACTOR														
10. RETURN REQUIREMENTS														
11. TOTAL DEPRECIATION EXPENSE AND RETURN REQUIREMENT														NONE

EXHIBIT NO. _____
DOCKET NO. 20170002-EG
FLORIDA PUBLIC UTILITIES COMPANY
(DNBM-1)
PAGE 4 OF 20

COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 CONSERVATION PROGRAM COSTS

SCHEDULE C-3
 PAGE 1 OF 5

ACTUAL FOR MONTHS ESTIMATED FOR MONTHS	January-17 July-17	THROUGH THROUGH	June-17 December-17										
PROGRAM NAME	LABOR & PAYROLL	ADVERTISING	LEGAL	OUTSIDE SERVICES	VEHICLE COST	MATERIALS & SUPPLIES	TRAVEL	GENERAL & ADMIN.	INCENTIVES	OTHER	SUB TOTAL	PROGRAM REVENUES	TOTAL
1. Common													
A. ACTUAL	120,172	26,396	973	1,588	3,064	3,296	15,481	0	0	9,321	180,290	0	180,290
B. ESTIMATED	112,500	12,500	10,000	12,500	5,000	2,550	15,000	0	0	2,250	172,300	0	172,300
C. TOTAL	232,672	38,896	10,973	14,088	8,064	5,846	30,481	0	0	11,571	352,590	0	352,590
2. Residential Energy Survey Program													
A. ACTUAL	24,221	2,281	0	1,204	1,116	591	3,635	0	0	247	33,294	0	33,294
B. ESTIMATED	32,500	7,500	0	9,000	2,500	1,250	5,000	0	0	100	57,850	0	57,850
C. TOTAL	56,721	9,781	0	10,204	3,616	1,841	8,635	0	0	347	91,144	0	91,144
3. Commercial Energy Survey													
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0	0	0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Low Income Program													
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0
B. ESTIMATED	1,250	2,500	0	0	250	50	125	0	0	0	4,175	0	4,175
C. TOTAL	1,250	2,500	0	0	250	50	125	0	0	0	4,175	0	4,175
5. Commercial Heating & Cooling Upgrade													
A. ACTUAL	0	2,783	0	0	0	0	0	0	0	0	2,783	0	2,783
B. ESTIMATED	500	3,750	0	0	0	50	50	0	500	0	4,850	0	4,850
C. TOTAL	500	6,533	0	0	0	50	50	0	500	0	7,633	0	7,633
6. Residential Heating & Cooling Upgrade													
A. ACTUAL	922	3,159	0	0	57	17	107	0	13,217	0	17,479	0	17,479
B. ESTIMATED	2,500	5,000	0	0	500	50	500	0	22,500	100	31,150	0	31,150
C. TOTAL	3,422	8,159	0	0	557	67	607	0	35,717	100	48,629	0	48,629
7. Commercial Indoor Efficient Lighting Rebate													
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0	0	0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0	0	0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB-TOTAL ACTUAL	145,316	34,619	973	2,791	4,236	3,904	19,222	0	13,217	9,568	233,846	0	233,846
SUB-TOTAL ESTIMATED	149,250	31,250	10,000	21,500	8,250	3,950	20,675	0	23,000	2,450	270,325	0	270,325
LESS: PRIOR YEAR AUDIT ADJ.													
ACTUAL											0		0
ESTIMATED													
TOTAL													
NET PROGRAM COSTS	SEE PAGE 1A												

COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 CONSERVATION PROGRAM COSTS

SCHEDULE C-3
 PAGE 1A OF 5

ACTUAL FOR MONTHS ESTIMATED FOR MONTHS	January-17 July-17	THROUGH THROUGH	June-17 December-17											
PROGRAM NAME	LABOR & PAYROLL	ADVERTISING	LEGAL	OUTSIDE SERVICES	VEHICLE COST	MATERIALS & SUPPLIES	TRAVEL	GENERAL & ADMIN.	INCENTIVES	OTHER	SUB TOTAL	PROGRAM REVENUES	TOTAL	
8. Commercial Window Film Installation Program														
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0			0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0			0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0			0
9. Commercial Chiller Upgrade Program														
A. ACTUAL	0	2,368	0	0	0	0	0	0	0	0	2,368			2,368
B. ESTIMATED	1,250	5,000	0	0	250	50	50	0	1,250	0	7,850			7,850
C. TOTAL	1,250	7,368	0	0	250	50	50	0	1,250	0	10,218			10,218
10. Solar Water Heating Program														
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0			0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0			0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0			0
11. Solar Photovoltaic Program														
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0			0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0			0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0			0
12. Demonstration and Development														
A. ACTUAL	1,313	0	0	0	1	16	162	0	0	9	1,501			1,501
B. ESTIMATED	1,250	0	0	36,000	250	0	0	0	0	0	37,500			37,500
C. TOTAL	2,563	0	0	36,000	251	16	162	0	0	9	39,001			39,001
13. Affordable Housing Builders and Providers														
A. ACTUAL	0	0	0	0	0	0	0	0	0	0	0			0
B. ESTIMATED	0	0	0	0	0	0	0	0	0	0	0			0
C. TOTAL	0	0	0	0	0	0	0	0	0	0	0			0
14. Commercial Reflective Roof Program														
A. ACTUAL	3,006	2,368	0	0	38	26	335	0	0	22	5,794			5,794
B. ESTIMATED	3,750	3,750	0	0	750	50	250	0	5,000	0	13,550			13,550
C. TOTAL	6,756	6,118	0	0	788	76	585	0	5,000	22	19,344			19,344
15. Commercial Energy Consultation														
A. ACTUAL	12,508	7	0	13,794	514	237	1,909	0	0	122	29,090			29,090
B. ESTIMATED	20,000	500	0	1,250	1,250	50	1,250	0	0	100	24,400			24,400
C. TOTAL	32,508	507	0	15,044	1,764	287	3,159	0	0	222	53,490			53,490
TOTAL ACTUAL	162,142	39,362	973	16,585	4,790	4,182	21,627	0	13,217	9,721	272,599	0		272,599
TOTAL ESTIMATED	175,500	40,500	10,000	58,750	10,750	4,100	22,225	0	29,250	2,550	353,625	0		353,625
LESS: PRIOR YEAR AUDIT ADJ. ACTUAL ESTIMATED TOTAL												0		0
NET PROGRAM COSTS	337,642	79,862	10,973	75,335	15,540	8,282	43,852	0	42,467	12,271	626,224	0		626,224

COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 SCHEDULE OF CAPITAL INVESTMENT, DEPRECIATION AND RETURN

SCHEDULE C-3
 PAGE 2 OF 5

ACTUAL FOR MONTHS ESTIMATED FOR MONTHS
 January-17 July-17 THROUGH THROUGH
 June-17 December-17

	BEGINNING OF PERIOD	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1. INVESTMENT	NONE													
2. DEPRECIATION BASE														
3. DEPRECIATION EXPENSE														
4. CUMULATIVE INVESTMENT														
5. LESS: ACCUMULATED DEPRECIATION														
6. NET INVESTMENT														
7. AVERAGE NET INVESTMENT														
8. RETURN ON AVERAGE INVESTMENT														
9. EXPANSION FACTOR														
10. RETURN REQUIREMENTS														
11. TOTAL DEPRECIATION EXPENSE AND RETURN REQUIREMENT														NONE

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COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 CONSERVATION PROGRAM COSTS

SCHEDULE C-3
 PAGE 3 OF 5

ACTUAL FOR MONTHS
 ESTIMATED FOR MONTHS

January-17
 July-17

THROUGH
 THROUGH

June-17
 December-17

A.	ESTIMATED EXPENSE BY PROGRAM	ACTUAL						TOTAL ACTUAL	ESTIMATED						TOTAL ESTIMATED	GRAND TOTAL	
		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE		JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER			
1.	Common	CV610	24,178	31,519	35,279	35,569	36,282	17,464	180,290	28,717	28,717	28,717	28,717	28,717	28,717	172,300	352,591
2.	Residential Energy Survey Program	CV613	5,501	5,938	6,285	4,290	4,394	6,885	33,294	9,642	9,642	9,642	9,642	9,642	9,642	57,850	91,144
3.	Commercial Energy Survey	CV616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.	Low Income Program	CV617	0	0	0	0	0	0	0	696	696	696	696	696	696	4,175	4,175
5.	Commercial Heating & Cooling Upgrade	CV618	1,115	349	235	393	241	450	2,783	808	808	808	808	808	808	4,850	7,633
6.	Residential Heating & Cooling Upgrade	CV619	11	3,472	5,537	1,775	2,444	4,239	17,479	5,192	5,192	5,192	5,192	5,192	5,192	31,150	48,629
7.	Commercial Indoor Efficient Lighting Rebate	CV621	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.	Commercial Window Film Installation Program	CV622	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.	Commercial Chiller Upgrade Program	CV623	700	349	235	393	241	450	2,368	1,308	1,308	1,308	1,308	1,308	1,308	7,850	10,218
10.	Solar Water Heating Program	CV624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.	Solar Photovoltaic Program	CV625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.	Demonstration and Development	CV626	1,084	0	418	0	0	0	0	0	0	0	0	0	0	0	0
13.	Affordable Housing Builders and Providers	CV627	0	0	0	0	0	0	1,501	6,250	6,250	6,250	6,250	6,250	6,250	37,500	39,001
14.	Commercial Reflective Roof Program	CV628	2,867	1,273	235	393	577	450	5,794	2,258	2,258	2,258	2,258	2,258	2,258	13,550	19,344
15.	Commercial Energy Consultation	CV629	3,452	7,787	1,671	13,345	1,682	1,153	29,090	4,067	4,067	4,067	4,067	4,067	4,067	24,400	53,490
16.	Prior period audit adj.								0							0	0
									0							0	0
17.	TOTAL ALL PROGRAMS		38,906	50,688	49,894	56,159	45,862	31,090	272,599	58,938	58,938	58,938	58,938	58,938	58,938	353,625	626,224
18.	LESS AMOUNT INCLUDED IN RATE BASE																
19.	RECOVERABLE CONSERVATION EXPENSES		38,906	50,688	49,894	56,159	45,862	31,090	272,599	58,938	58,938	58,938	58,938	58,938	58,938	353,625	626,224

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COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 ENERGY CONSERVATION ADJUSTMENT
 CALCULATION OF TRUE UP AND INTEREST PROVISION

SCHEDULE C-3
 PAGE 4 OF 5

	ACTUAL FOR MONTHS	January-17	THROUGH	June-17													
	ESTIMATED FOR MONTHS	July-17	THROUGH	December-17	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
B. CONSERVATION REVENUES																	
1. RCS AUDIT FEES																	
a.																	
b.																	
c.																	
2. CONSERVATION ADJ REVENUE (NET OF REVENUE TAXES)		(47,932)	(47,689)	(41,703)	(46,020)	(47,139)	(57,434)	(68,463)	(65,643)	(61,494)	(48,361)	(45,540)	(47,737)	(625,155)			
3. TOTAL REVENUES		(47,932)	(47,689)	(41,703)	(46,020)	(47,139)	(57,434)	(68,463)	(65,643)	(61,494)	(48,361)	(45,540)	(47,737)	(625,155)			
4. PRIOR PERIOD TRUE-UP-ADJ NOT APPLICABLE TO PERIOD		(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(5,468)	(65,614)
5. CONSERVATION REVENUES APPLICABLE TO PERIOD		(53,400)	(53,157)	(47,171)	(51,488)	(52,607)	(62,902)	(73,931)	(71,111)	(66,962)	(53,829)	(51,008)	(53,203)	(690,769)			
6. CONSERVATION EXPENSES (FORM C-3, PAGE 3)		38,906	50,688	49,894	56,159	45,862	31,090	58,938	58,938	58,938	58,938	58,938	(65,614)	58,938	58,938	58,938	626,224
7. TRUE-UP THIS PERIOD		(14,494)	(2,469)	2,723	4,671	(6,745)	(31,813)	(14,994)	(12,174)	(8,024)	5,109	7,930	5,735	(64,545)			
8. INTEREST PROVISION THIS PERIOD (C-3, PAGE 5)		(37)	(38)	(40)	(40)	(38)	(50)	(64)	(71)	(74)	(71)	(62)	(53)	(638)			
9. TRUE-UP & INTEREST PROVISION		(65,614)	(74,677)	(71,716)	(63,564)	(53,466)	(54,780)	(81,175)	(90,764)	(97,541)	(100,171)	(89,666)	(76,330)	(65,614)			
10. PRIOR TRUE-UP REFUNDED (COLLECTED)		5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	5,468	65,614
11. END OF PERIOD TOTAL NET TRUE- UP (SUM OF LINES 7,8,9,10)		(74,677)	(71,716)	(63,564)	(53,466)	(54,780)	(81,175)	(90,764)	(97,541)	(100,171)	(89,666)	(76,330)	(65,183)	(65,183)			0

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COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
ENERGY CONSERVATION ADJUSTMENT
CALCULATION OF TRUE UP AND INTEREST PROVISION

SCHEDULE C-3
PAGE 5 OF 5

ACTUAL FOR MONTHS January-17 THROUGH June-17
ESTIMATED FOR MONTHS July-17 THROUGH December-17

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
C. INTEREST PROVISION													
1. BEGINNING TRUE-UP (LINE B-9)	(65,614)	(74,677)	(71,716)	(63,564)	(53,466)	(54,780)	(81,175)	(90,764)	(97,541)	(100,171)	(89,666)	(76,330)	(65,183)
2. ENDING TRUE-UP BEFORE INTEREST (LINE B7+B9+B10)	(74,640)	(71,678)	(63,524)	(53,426)	(54,742)	(81,125)	(90,700)	(97,470)	(100,097)	(89,595)	(76,268)	(65,130)	(64,545)
3. TOTAL BEG. AND ENDING TRUE-UP	(140,254)	(146,354)	(135,240)	(116,990)	(108,208)	(135,905)	(171,875)	(188,234)	(197,638)	(189,766)	(165,934)	(141,460)	(129,728)
4. AVERAGE TRUE-UP (LINE C-3 X 50 %)	(70,127)	(73,177)	(67,620)	(58,495)	(54,104)	(67,953)	(85,938)	(94,117)	(98,819)	(94,883)	(82,967)	(70,730)	(64,864)
5. INTEREST RATE-FIRST DAY OF REPORTING BUSINESS MONTH	0.63%	0.62%	0.63%	0.80%	0.84%	0.86%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
6. INTEREST RATE-FIRST DAY OF SUBSEQUENT BUSINESS MONTH	0.62%	0.63%	0.80%	0.84%	0.86%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
7. TOTAL (LINE C-5 + C-6)	1.25%	1.25%	1.43%	1.64%	1.70%	1.76%	1.80%	1.80%	1.80%	1.80%	1.80%	1.80%	1.80%
8. AVG INTEREST RATE (C-7 X 50%)	0.63%	0.63%	0.72%	0.82%	0.85%	0.88%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
9. MONTHLY AVERAGE INTEREST RATE	0.052%	0.052%	0.060%	0.068%	0.071%	0.073%	0.075%	0.075%	0.075%	0.075%	0.075%	0.075%	0.075%
10. INTEREST PROVISION (LINE C-4 X C-9)	(37)	(38)	(40)	(40)	(38)	(50)	(64)	(71)	(74)	(71)	(62)	(53)	(638)

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COMPANY: FLORIDA PUBLIC UTILITIES COMPANY - CONSOLIDATED ELECTRIC DIVISION
 CALCULATION OF CONSERVATION REVENUES

SCHEDULE C-4
 PAGE 1 OF 1

FOR THE PERIOD January-17 THROUGH December-18

MONTH	KWH/THERM SALES (000) (NET OF 3RD PARTY)	CONSERVATION ADJUSTMENT REVENUE (NET OF REVENUE TAXES)	RATE
2017 JANUARY	47,986	47,932	ACTUAL
FEBRUARY	41,248	47,689	ACTUAL
MARCH	41,754	41,703	ACTUAL
APRIL	46,074	46,020	ACTUAL
MAY	47,200	47,139	ACTUAL
JUNE	57,504	57,434	ACTUAL
JULY	68,365	68,463	0.100143
AUGUST	65,548	65,643	0.100144
SEPTEMBER	61,406	61,494	0.100143
OCTOBER	48,291	48,361	0.100145
NOVEMBER	45,474	45,540	0.100144
DECEMBER	47,668	47,737	0.100145
SUB-TOTAL	618,519	625,155	
2018 JANUARY	51,465	52,488	0.101986
FEBRUARY	46,445	47,367	0.101986
MARCH	44,019	44,893	0.101986
APRIL	44,604	45,490	0.101986
MAY	46,366	47,286	0.101986
JUNE	60,603	61,807	0.101986
JULY	68,326	69,683	0.101986
AUGUST	68,308	69,664	0.101986
SEPTEMBER	66,646	67,969	0.101986
OCTOBER	55,539	56,642	0.101986
NOVEMBER	46,376	47,297	0.101986
DECEMBER	46,164	47,081	0.101986
SUB-TOTAL	644,861	657,667	
TOTALS	1,263,380	1,282,822	

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Program

1. Residential Energy Survey Program
2. Commercial Heating and Cooling Upgrade Program
3. Residential Heating and Cooling Upgrade Program
4. Commercial Chiller Upgrade Program
5. Conservation Demonstration and Development Program
6. Low Income Energy Outreach Program
7. Commercial Reflective Roof Program
8. Commercial Energy Consultation Program

PROGRAM TITLE:

Residential Energy Survey Program

PROGRAM DESCRIPTION:

The objective of the Residential Energy Survey Program is to provide FPUC's residential customers with energy conservation advice that encourages the implementation of efficiency measures resulting in energy savings for the customer. These measures, once implemented, also lower FPUC's energy requirements and improve operating efficiencies. FPUC views this program as a way of promoting the installation of cost-effective conservation features. During the survey process, the customer is provided with specific whole-house recommendations. The survey process also checks for possible duct leakage. If a problem is identified, recommendations are made for further analysis and repairs. Blower-door testing is required to identify and quantify the duct leakage. FPUC provides the customer with a list of contractors that provide blower-door testing. After the blower-door test contractor identifies the leakage sites and quantities, the customer is given a written summary of the test findings and the potential for savings, along with a list of approved repair contractors. During the survey, FPUC will provide the customer with a conservation kit as appropriate. The kit includes two LED bulbs, weather stripping, chalk, insulators for wall sockets and light switches, and a water temperature thermometer. While the contents of the conservation kit will result in demand and energy savings, its purpose is to provide the customer with actual samples of low and no cost measures the customer can take to reduce their energy costs.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that 200 residential surveys will be conducted. Fiscal expenditures for 2018 are projected to be \$104,600

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017, 69 surveys were performed and actual expenditures were \$33,294. We estimate that another 100 surveys will be performed between July 2017 and December 2017. For January 2017 through December 2017 the projected expenses are \$91,144.

For January 2017 through December 2017, the goal for the number of program participants is 100.

PROGRAM SUMMARY:

This program provides participating customers with the information needed to determine which energy saving measures are best suited to their individual needs and requirements. We feel confident that by continuing to advertise the benefits of this program through bill inserts, promotional materials, newspaper, cable TV and social media, we will continue to see a high participation level in this program.

**FLORIDA PUBLIC UTILITIES COMPANY
CONSOLIDATED ELECTRIC DIVISION
PROGRAM DESCRIPTION AND SUMMARY**

**SCHEDULE C-5
PAGE 3 OF 9**

PROGRAM TITLE:

Commercial Heating and Cooling Upgrade Program

PROGRAM DESCRIPTION:

This program is directed at reducing the rate of growth in peak demand and energy throughout FPUC's commercial sector by providing rebates to small commercial customers (commercial establishments with a maximum of 5 ton units). The program will do this by increasing the saturation of high-efficiency heat pumps and air conditioners. The program requires that customer install a high-efficiency central air conditioning system or heat pump with a minimum 15 SEER.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that 10 Commercial Heating and Cooling allowances will be paid. Fiscal expenditures for 2018 are projected to be \$11,100

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017, no Commercial Heating and Cooling allowances were paid and actual expenditures were \$2,783. We estimate that 5 Commercial Heating and Cooling allowances will be paid between July 2017 and December 2017. For January 2017 through December 2017 the projected expenses are \$7,633.

For January 2017 through December 2017, the goal for the number of program participants is 10.

PROGRAM SUMMARY:

This program provides an opportunity for FPUC commercial customers to install a more energy efficient heating and cooling system with the results being a decrease in energy consumption as well as a reduction in weather-sensitive peak demand for FPUC. We feel confident that by continuing to advertise the benefits of this program through our Energy Survey Program, bill inserts, promotional materials and social media platforms, we will see a higher participation level.

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PROGRAM TITLE:

Residential Heating and Cooling Efficiency Upgrade Program

PROGRAM DESCRIPTION:

This program is directed at reducing the rate of growth in peak demand and energy throughout FPUC's electricity service territories. The program will do this by increasing the saturation of high-efficiency heat pumps and central air conditioning systems. The program requires that customer install a high-efficiency central air conditioning system or heat pump with a minimum 15 SEER. The Residential Heating & Cooling Efficiency Upgrade Program focuses in two areas. The first is to incent customers operating inefficient heat pumps and air conditioners to replace them with more efficient units. The program also incents customers with resistance heating to install a new heat pump. The second area of focus for the program is to incent customers that are replacing a heat pump or air conditioner that has reached the end of its life with a more efficient heat pump or air conditioner than is required by codes and standards. The incentive to install a more efficient heat pump or air conditioner also applies to heat pumps and air conditioners being installed in new construction.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that 300 Residential Heating and Cooling allowances will be paid. Fiscal expenditures for 2018 are projected to be \$38,650.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017, 124 Residential Heating and Cooling allowances were paid and actual expenditures were \$17,479. We estimate that another 125 Residential Heating and Cooling allowances will be paid between July 2017 and December 2017. For January 2017 through December 2017 the projected expenses are \$48,629. For January 2017 through December 2017, the goal for the number of program participants is 100.

PROGRAM SUMMARY:

This program provides an opportunity for FPUC customers' to install a more energy efficient heating and cooling system with the results being a decrease in energy consumption as well as a reduction in weather-sensitive peak demand for FPUC. We feel confident that by continuing to advertise the benefits of this program through, bill inserts, promotional materials and social media, we will continue to see a high participation level.

PROGRAM TITLE:

Commercial Chiller Upgrade Program

PROGRAM DESCRIPTION:

The program is directed at reducing the rate of growth in peak demand and energy throughout FPUC's commercial/industrial sector. To serve this purpose, this program requires that commercial/industrial customers replace existing chillers with a more efficient system. By doing so, they will qualify for an incentive of up to \$175 per kW of additional savings above the minimum efficiency levels. The program covers water-cooled centrifugal chillers, water-cooled scroll or screw chillers, and air-cooled electric chillers. Minimum qualifications for efficiency exist for each of the chiller types based on size and are presented in the participation standards section of this program description. Interested customers will send project proposals to FPUC and a representative will schedule an on-site visit for inspection prior to installation. After the project is completed, a FPUC representative will conduct an on-site inspection. By following the guidelines, the customer will qualify for the rebate.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that 1 Commercial Chiller Upgrade rebate will be paid. Fiscal expenditures for 2018 are projected to be \$18,550.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017, no Commercial Chiller Upgrade allowances were paid and actual expenditures were \$2,368. We estimate that 1 Commercial Chiller Upgrade rebate will be paid between July 2017 and December 2017. For January 2017 through December 2017 the projected expenses are \$10,218.

For January 2017 through December 2017, the goal for the number of program participants is 1.

PROGRAM SUMMARY:

Interested customers will send project proposals to Florida Public Utilities Company and a representative will schedule an on-site visit for inspection prior to installation. After the project is completed, a Florida Public Utilities Company representative will conduct an on-site inspection. By following the guidelines, the customer will qualify for the rebate.

PROGRAM TITLE:

Conservation Demonstration and Development Program

PROGRAM DESCRIPTION:

The primary purpose of the Conservation Demonstration and Development (CDD) program is to pursue research, development, and demonstration projects that are designed to promote energy efficiency and conservation. This program will supplement and complement the other demand-side management programs offered by Florida Public Utilities Company. The CDD program is meant to be an umbrella program for the identification, development, demonstration, and evaluation of promising new end-use technologies. The CDD program does not focus on any specific end-use technology but, instead, will address a wide variety of energy applications.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that they will engage in at least 1 CDD project. Fiscal expenditures for 2018 are projected to be \$75,000.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017 actual expenditures were \$1,501. For January 2017 through December 2017 the projected expenses are \$39,001.

PROGRAM SUMMARY:

Per the Company's 2015 Demand Side Management Plan (approved by ORDER NUMBER PSC-15-0326-PAA-EG), FPUC will notify the Florida Public Service Commission of any CDD project that exceeds \$15,000. FPU wishes to test the viability of using battery storage technology to improve customer's electric system reliability and resiliency (see Exhibit A). In addition, the pilot will test whether the technology can be used to lower FPU's power supply cost and test the viability of using storage batteries to integrate renewables into FPU's power purchase portfolio. Florida Public Utilities Company will limit the total CDD expenditures to a maximum of \$75,000 per year. Costs for CDD projects that meet the program's criteria for acceptance will be charged to Energy Conservation Cost Recovery account.

PROGRAM TITLE:

Low Income Program

PROGRAM DESCRIPTION:

The Low Income Energy Outreach Program is an educational program designed to enhance the effectiveness of existing weatherization programs for low-income households. FPUC's Low Income Energy Outreach Program partners with Department of Economic Opportunity approved Low Income Weatherization Program operators by offering Residential Energy Surveys scheduled by the Low Income Weatherization Program operators, weatherization contractor training, distributing energy efficiency educational literature to participants, and hosting energy conservation events customized for low income households.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, fiscal expenditures are projected to be \$16,500.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017 actual expenditures were \$0. For January 2017 through December 2017 the projected expenses are \$4,175.

PROGRAM SUMMARY:

The main purpose of the Low Income Energy Outreach Program is to ensure that low income households are implementing all the necessary energy efficiency measures available. FPUC believes that by working with Weatherization Program operators, it is not only offering a valuable service to its Low Income residents, but that much needed thermal efficiency and weatherization improvements will be made.

PROGRAM TITLE:

Commercial Reflective Roof Program

PROGRAM DESCRIPTION:

The Commercial Reflective Roof Program is a new program that provides rebates to non-residential customers that either convert their existing roof to a cool roof or install a new cool roof on an existing building or a new building. The rebate covers up to 25% of the incremental cost of providing the cool roof compared to a standard roof. Rebates will be \$0.075 per sqft for new roofs on new or existing facilities and \$0.325 per sqft for roofs converting to a cool roof. Roofing material must be Energy Star certified in all cases. The program will reduce energy and demand required for cooling. Participation rates are measured per 1000 sq. ft. of roof. FPUC will work with roofing contractors to promote the program in a manner similar to the Residential and Commercial Heating & Cooling Upgrade Programs. The roofing contractors will provide copies of their proposal to provide roofing services for FPUC's customers. FPUC will inspect the roof before work begins and after the work is completed. FPUC will make the determination of which level of rebate will apply to the project and that the project qualifies for a rebate by using Energy Star certified materials.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, the Company estimates that 15 Commercial Reflective Roof allowances will be paid. Fiscal expenditures for 2018 are projected to be \$20,650.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017, no commercial roofing rebates were paid and actual expenditures were \$5,794. We estimate that 10 commercial roofing rebates will be paid between July 2017 and December 2017. For January 2017 through December 2017 the projected expenses are \$19,344. For January 2017 through December 2017, the goal for the number of program participants is 10.

PROGRAM SUMMARY:

The program started upon approval of FPUC's 2015 DSM Plan and Program Standards. We feel confident that by advertising the benefits of this program through our Energy Survey Program, bill inserts, promotional materials and social media platforms, we will begin to receive participants in this program.

PROGRAM TITLE:

Commercial Energy Consultation Program

PROGRAM DESCRIPTION:

The Florida Public Utilities Company Commercial Energy Consultation Program is designed to directly communicate the availability of the commercial DSM programs to commercial customers. This program allows for FPUC energy conservation representatives to conduct commercial site visits to educate customers about FPUC's commercial DSM programs, assess the potential for applicable DSM Programs, conduct an electric bill review, offer commercial energy savings suggestions, and inform customer about FPUC's commercial online energy efficiency resources and tools.

PROGRAM PROJECTIONS:

For the twelve-month period of January to December 2018, fiscal expenditures are projected to be \$46,100.

PROGRAM ACTIVITY AND EXPENDITURES:

From January 2017 through June 2017 actual expenditures were \$29,090. For January 2017 through December 2017 the projected expenses are \$53,490.

PROGRAM SUMMARY:

In recent research of commercial/industrial customers, consistent response for areas of improvement from this class of customer include individualized attention and service in helping them improve their cost of operation and efficiency. We have built trusting relationships with many of these customers by offering education on new technologies and by offering expertise in energy conservation. This work will continue to benefit FPUC and its rate payers.

FPU Distributed Battery Technology Pilot

Pilot Concept:

FPU wishes to test the viability of using battery storage technology to improve customer's electric system reliability and resiliency. In addition, the pilot will test whether the technology can be used to lower FPU's power supply cost and test the viability of using storage batteries to integrate renewables into FPU's power purchase portfolio.

FPU's customers, especially on Amelia Island, are interested in finding innovative ways to increase use of renewable energy. As of the end of June, 2017 there were 90 solar installations on Amelia Island generating approximately 523 KW. Residents are also interested in minimizing power interruptions especially on the south end of Amelia Island. FPU would like to be able to offer its customers safe, reliable and affordable alternatives that will also help us reduce power supply costs and help the environment. This pilot will test the technology's ability to address reliability concerns of some of our customers and help us prepare for the future with innovative solutions that maintain grid integrity. We believe that partnering with a recognized brand will enhance customer adoption and improve the likelihood of success for the pilot.

While conducting this pilot, FPU will be able to learn more about the renewables business and be better prepared for a changing energy landscape where consumers demand reliable, cost effective, and environmentally friendly low carbon energy solutions.

Literature Review

The cost of grid scale battery storage is falling quicker than most analysts presumed. Small scale battery storage prices have also come down significantly and there are several companies that are now competing in that market. Consumers are looking to battery storage as a way to save on energy costs and have greater reliability.

While residential solar has been growing at an unprecedented rate, the lack of cost-effective storage devices had been a constant issue plaguing this industry. Regardless of all the amazing cost-reductions experienced by solar panels over the years, a cost-effective energy storage device is required for greater adoption of this technology. The competition in this space is beginning to intensify and consumers will reap the benefits of lower storage costs paired with lower solar panel costs.

There are several residential battery companies, among them Tesla and Sonnen.

Tesla offers the Tesla Powerwall and competes well on price, while offering numerous benefits. It is smaller per kWh, requires less maintenance, can be hung on the wall, a greater amount of the battery can be utilized without quickly degrading the battery and it is aesthetically well crafted.

In a comparison done by Clean Technica, the U.S. number one clean technology focused website, when compared to the Tesla Powerwall, the Sonnen product is competitive. Although the Sonnen product is more expensive, the system is warranted for 10,000 cycles "which is greater than the cycle life warranted by some of their competitors," according to Brett Simon, a GTM Research energy storage analyst.

Consumer Value Proposition:

- Resiliency and reliability in case of natural disaster and other power outages
- Time of use arbitrage and peak shaving (money saving activity)
- Increased value of solar energy system by providing battery storage for use when solar is not available
- Increased energy independence and control of how and when energy is used

Applications

The pilot will incorporate the use of the technology in multiple applications across several customer segments.

We will also test if battery storage complements solar energy systems by eliminating issues of solar power's intermittency and lack of complete overlap with peak demand periods and thus encourage the use of battery storage and other renewable energy resources.

We would like to use the information gathered during the pilot to explore rebates to customers who allow FPU to manage their battery for charging and discharging during peak demand periods while ensuring continued grid reliability.

The pilot will be designed to:

- Research best application for battery storage technology - stand alone, solar/battery combination – in residential applications.
- Evaluate user's acceptance and experience with the technology to improve energy efficiency and reliability
- Test the products impact on communications and dispatch technology and system efficiency
- Collection of base line data that will be used to model cost-benefit analysis of the technology for load shifting and/or peak shaving
- Analyze the cost effectiveness of using battery storage technology

Potential Business Models

Data gathered during this pilot phase will be used to determine and design the appropriate business model and regulatory structure that should be used to move forward with implementation of this program.

Pilot Offering

During the pilot, FPU will offer a select group of customers battery storage at no cost to the customer. Customers will agree to allow FPU to control, measure and test the technology during the period of time the pilot is in place.

The selection criteria for pilot participants is discussed below and most likely will include customers whose homes are located on the south end of Amelia Island where power reliability has been an ongoing issue. We will also attempt to have a mix of systems installed with and without solar with the initial focus being on those with solar since the battery technology to support solar is more developed than standalone battery technology.

Data Collection Requirements

Data to be collected during the study will be the following items and will be supplied by the inverters and a metering device (similar to a SolarEdge Electricity Meter) which is connected to a communication system that will allow FPU to acquire the needed data. The meter will be connected in the "export meter" configuration so the data is available as measured or calculated quantities with detail down to 15 minute interval data.

- Production of solar panels
- Charging of storage battery from the solar panel or electrical grid
- Consumption/Usage at the location
- Export of energy to the electrical grid
- Import of energy from the electrical grid

The data will be analyzed to determine what impact is realized on the electric grid when the battery discharges back to the grid at peak times, when the battery provides electricity, when electrical grid power is not available, and how the solar panels and storage batteries interact during periods when the solar panels are active.

Communications Systems Requirements

Typical installations will include a cloud based monitoring system (Similar to the StorEdge Monitoring and System Information system) which will allow the data points described above to be collected. Data should be available by means of a monitoring dashboard or system charts that may be downloaded and manipulated as needed. Customer will provide a high quality internet connection with the ability to connect to a standard RS485 connector. All equipment will be mounted in a secure area and accessible to FPU personnel when scheduled with reasonable notice.

Initially, business unit personnel will evaluate data from different sources in order to better understand what information is available through built-in product communication systems. For example, we would like to test the potential overall impact of the storage battery systems on the electric grid. We may or may not be able to obtain this information from information readily available from the manufacturers.

After initial findings, we will work with the internal BIS group to better evaluate all the data available and/or necessary in a consistent and detailed manner in order to determine what, if any, system and software will be required to proceed with this pilot.

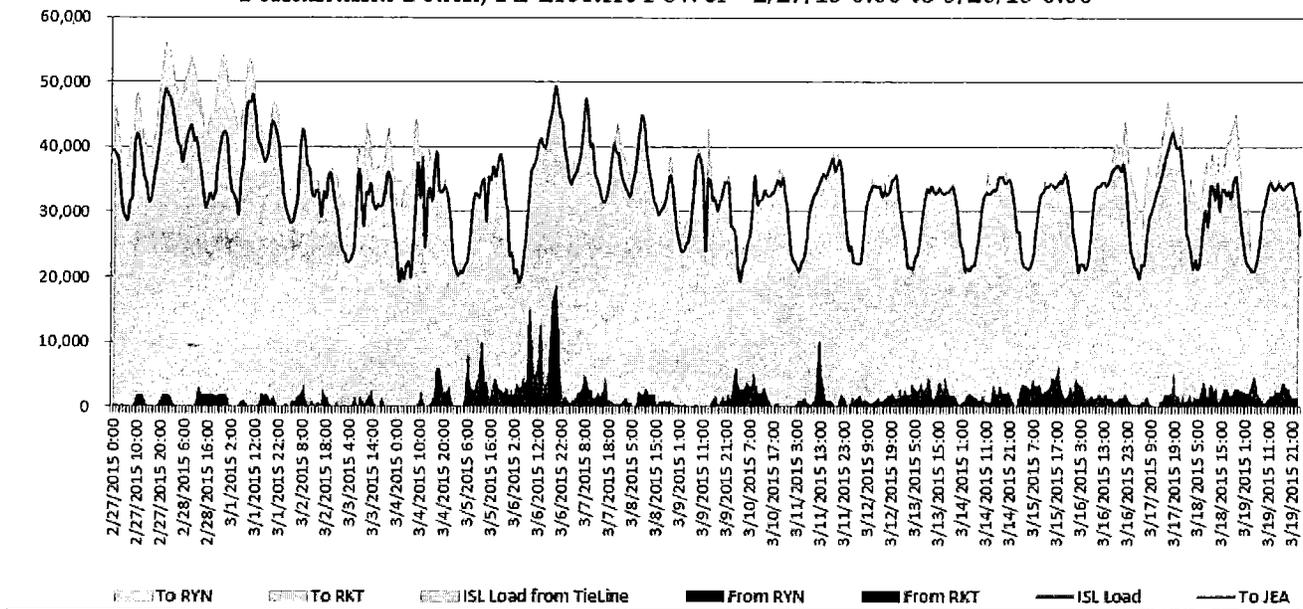
Electrical Systems Requirements

All electrical systems will comply with all aspects of the National Electric Code and National Electric Safety Code (when applicable). Additionally, the system will be installed in compliance with the manufacturers specifications, inspected by the local code enforcement personnel and must be approved by the local utility representative. In order to ensure the safety of utility personnel, a main disconnect must be installed that is capable of completely isolating any potential of feeding energy back to the grid and capable of being locked in the open position by utility personnel.

Amelia Island Load Chart and Background Information

Shown below is a typical electrical load profile for Amelia Island. The load profile contains dramatic peaks which could be mitigated by battery discharges during selected times. This would assist in reducing overall cost to customers and improving the load factor associated with the wholesale power agreement. The 15 minute interval data from the solar/battery system can be matched with the actual load profile for that time period so that the total impact of the battery discharges can be measured. This measurement will demonstrate the capability of battery storage to reduce system wholesale power cost (which decreases cost to customers) and the impact on improving reliability to the customer when the electrical grid is not available.

Fernandina Beach, FL Electric Power - 2/27/15 0:00 to 3/20/15 0:00



Site Selection Criteria

In order to assure the long term success of the program the following criteria will be utilized when selecting a customer and location for the pilot program.

- Current FPU customer with excellent credit rating
- Structure is in good condition as evaluated by FPU personnel
- Premise is owned and occupied, and is not a rental or lease property
- Customer agrees to allow scheduled access to the equipment
- Customer agrees to allow FPU approved contractors to perform the installation
- Structure has a standard 200 AMP 120/240 volt service (overhead or underground)
- Solar Panel installation is considered a Tier 1 installation which is rated at less than 10 KW of total connected panels.
- Customer agrees to provide high quality internet access to the equipment
- Battery installation may, if possible, occur at the time of initial installation of solar equipment
- Customer agrees to allow monitoring of equipment for a minimum of 5 years

Budget

The pilot will be funded through the Electric Conservation Demonstration and Development (CDD) program at a maximum of \$75,000 per year for a two year period.

Equipment Information

PRODUCT TYPE	EQUIP. COST	INVERTER COST	INSTALL. COST	WARRANTY INFORMATION	COMM. REQUIR.	CONTINOUS VS PEAK RATING	kWh per CYCLE
TESLA	\$5,200	\$5,000	\$5,800	10,000 Discharges or 120 months	Internet Connection	7 KW Peak and 5 KW continuous	14 KWH
SONNEN	\$9,375	\$0	\$3,800	10,000 discharges or 120 months	Internet Connection	8 KW Continuous	12 KWH

Contractors and Partners in Pilot

The contractors selected to participate in this program have been trained and certified by the manufacturers to install the equipment. Other contractors may be added after training and certification by the manufacturers.

Miller Electric – Tesla Storage Battery System

AIA Solar – Sonnen Storage Battery System

