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May 1, 2018

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

RE: Docket No. 20180002-EG

Dear Ms. Stauffer:

Attached for electronic filing is the Final True-up Testimony and Exhibit for the period January – December 2017 of John N. Floyd in the above-referenced docket.

Pursuant to the Order Establishing Procedure, an electronic copy will be provided to the parties.

Sincerely,

A handwritten signature in blue ink that reads "Rhonda J. Alexander".

Rhonda J. Alexander  
Regulatory, Forecasting and Pricing Manager

md

Attachments

cc: Florida Public Service Commission  
Margo DuVal, Senior Attorney, Office of the General Counsel (5 copies)  
Gulf Power Company  
Jeffrey A. Stone, Esq., General Counsel  
Beggs & Lane  
Russell Badders, Esq.

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

**ENERGY CONSERVATION COST  
RECOVERY CLAUSE**

**Docket No. 20180002-EG**

**PREPARED DIRECT TESTIMONY AND  
EXHIBIT OF  
JOHN N. FLOYD**

**FINAL TRUE-UP FOR THE PERIOD:  
JANUARY – DECEMBER 2017**

**DATE OF FILING: May 1, 2018**



**Gulf Power**

1 GULF POWER COMPANY

2 Before the Florida Public Service Commission  
3 Prepared Direct Testimony of  
4 John N. Floyd  
5 Docket No. 20180002-EG  
6 Date of Filing: May 1, 2018

7 Q. Please state your name, business address, employer and position.

8 A. My name is John N. Floyd, and my business address is One Energy  
9 Place, Pensacola, Florida 32520. I am employed by Gulf Power Company  
10 (Gulf or the Company) as the Energy Efficiency and Renewables  
11 Manager.

12 Q. Mr. Floyd, please describe your educational background and business  
13 experience.

14 A. I received a Bachelor Degree in Electrical Engineering from Auburn  
15 University in 1985. After serving four years in the U.S. Air Force, I began  
16 my career in the electric utility industry at Gulf Power in 1990 and have  
17 held various positions with the Company in Power Generation, Metering,  
18 Power Delivery and Marketing. In my present position, I am responsible  
19 for the development and implementation of Gulf's customer program  
20 offerings associated with the Company's Demand-Side Management  
21 (DSM) Plan.

22  
23 Q. Have you previously testified before this Commission in connection with  
24 the Energy Conservation Cost Recovery Clause?

25 A. Yes.

1 Q. Mr. Floyd, what is the purpose of your testimony?

2 A. The purpose of my testimony is to present the results of the approved  
3 Energy Conservation Cost Recovery Clause programs and related  
4 expenses for January 2017 through December 2017.

5

6 Q. Are you sponsoring any exhibits to your testimony?

7 A. Yes, I sponsor Exhibit JNF-1, Schedules CT-1 through CT-6.

8

9 Q. Have you verified that the information contained in Exhibit JNF-1 is  
10 correct?

11 A. Yes, I have. This exhibit was prepared under my direction and control,  
12 and the information contained therein is true and correct to the best of my  
13 knowledge.

14 Counsel: We ask that Mr. Floyd's exhibit consisting of 6 Schedules,  
15 CT-1 through CT-6, be marked for identification as:  
16 Exhibit No. \_\_\_\_ (JNF-1)

17

18 Q. Please summarize for this Commission the deviations between the actual  
19 expenses for this recovery period and the amount of estimated/actual  
20 expenses previously filed with this Commission.

21 A. The estimated/actual true-up net expenses for the entire recovery period  
22 January 2017 through December 2017, previously filed, were  
23 \$12,276,202. The actual expenses incurred in 2017 were \$11,854,558,  
24 which resulted in a variance of \$421,644 or 3.4% under the projection.  
25 See Schedule CT-2, Line 10.

1 Q. Mr. Floyd, would you explain the January 2017 through December 2017  
2 variance?

3 A. Yes. The variance was a result of actual expenses being less than  
4 estimated in the majority of the programs. These variances were partially  
5 offset by the following programs which experienced more actual expenses  
6 than estimated: Residential Energy Audit and Education, Residential  
7 Custom Incentive, Commercial/Industrial Energy Audit, HVAC  
8 Retrocommissioning and Conservation Demonstration and Development.  
9 Overall, these variances mean that actual program expenses for the 12-  
10 month period through December 2017 were \$421,644 less than the level  
11 of estimated/actual program expenses filed on August 18, 2017. A more  
12 detailed description of the deviations is contained in Schedule CT-3, Page  
13 1 and Schedule CT-6.

14  
15 Q. Mr. Floyd, what was Gulf's adjusted net true-up for the period January  
16 2017 through December 2017?

17 A. There was a \$43,106 over-recovery as shown on Schedule CT-1.

18  
19 Q. Please describe your program participation levels during the recovery  
20 period.

21 A. A more detailed review of each of the programs is included in my  
22 Schedule CT-6. The following is a synopsis of program participation  
23 levels during this recovery period.

24  
25

- 1 (A) Residential Energy Surveys - During the 2017 recovery period, the  
2 Company completed 12,314 surveys compared to the projection of  
3 6,304.
- 4 (B) Community Energy Saver – During the 2017 recovery period, the  
5 Company served a total of 2,500 eligible participants compared to a  
6 projection of 2,500.
- 7 (C) Residential Custom Incentive – During the 2017 recovery period,  
8 no participants enrolled in this program.
- 9 (D) HVAC Efficiency – During the 2017 recovery period, there were a  
10 total of 2,464 participants in this program compared to a projection  
11 of 5,979.
- 12 (E) Residential Building Efficiency – During the 2017 recovery period,  
13 there were a total of 510 participants in this program compared to a  
14 projection of 643.
- 15 (F) Energy Select - During the 2017 recovery period, there was a net  
16 increase of 1,439 customers with a total of 19,159 customers  
17 on-line as of December 31, 2017. Gulf projected 1,600 net new  
18 customer additions during 2017.
- 19 (G) Commercial/Industrial (C/I) Energy Analysis - During the 2017  
20 recovery period, a total of 222 C/I Energy Analyses were completed  
21 compared to a projection of 262.
- 22 (H) Commercial HVAC Retrocommissioning – During the 2017  
23 recovery period, there were 214 participants in this program  
24 compared to a projection of 60.

25

- 1 (I) Commercial Building Efficiency - During the 2017 recovery period,  
2 Gulf Power had 52,946 square feet of qualifying measure installed.  
3 Comparisons to 2017 projections can be found in Schedule CT-6.
- 4 (J) Commercial/Industrial Custom Incentive – During the 2017  
5 recovery period, there was a total of 1 participant enrolled in this  
6 program compared to a projection of 0 participants.
- 7 (K) Residential Time of Use Rate Pilot – Further description of the  
8 Residential Time of Use Rate pilot program can be found in  
9 Schedule CT-6.
- 10 (L) Conservation Demonstration and Development – Further  
11 description of the 2017 Conservation Demonstration and  
12 Development projects can be found in Schedule CT-6.

13

14

15 Q. Should Gulf's recoverable energy conservation cost for the period be  
16 accepted as reasonable and prudent?

17 A. Yes.

18

19 Q. Mr. Floyd, does this conclude your testimony?

20 A. Yes, it does.

21

22

23

24

25

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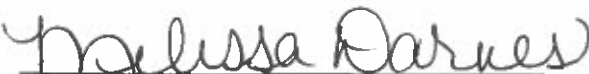
STATE OF FLORIDA     )  
  )  
COUNTY OF ESCAMBIA   )

Docket No. 20180002-EG

Before me the undersigned authority, personally appeared John N. Floyd, who being first duly sworn, deposes, and says that he is the Marketing Service and Compliance Manager of Gulf Power Company, a Florida corporation, that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.

  
\_\_\_\_\_  
John N. Floyd  
Marketing Service and Compliance Manager

Sworn to and subscribed before me this 15<sup>th</sup> day of May, 2018.

  
\_\_\_\_\_  
Notary Public, State of Florida at Large



MELISSA DARNES  
MY COMMISSION # FF 912698  
EXPIRES: December 17, 2019  
Bonded Thru Budget Notary Services



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**Schedule CT-1**

**Gulf Power Company**  
 ENERGY CONSERVATION COST RECOVERY (ECCR)  
 Calculation of the Final True-Up Amount  
**For the Period: January 2017 - December 2017**

	<u>\$</u>	<u>\$</u>
Actual		
1. Principal	(83,995)	
2. Interest	<u>(16,301)</u>	
3. Actual Over/(Under) Recovery Ending Balance		(100,296)
Estimated/Actual as filed August 18, 2017		
4. Principal	(126,885)	
5. Interest	<u>(16,518)</u>	
6. Total Estimated/Actual Over/(Under) Recovery		<u>(143,402)</u>
7. Adjusted Net True-up Over/(Under) Recovery (Line 3 - 6)		<u><u>43,106</u></u>

**Schedule CT-2**

**Gulf Power Company**

**ENERGY CONSERVATION COST RECOVERY (ECCR)**

Calculation of the Final True-Up Amount

**For the Period: January 2017 - December 2017**

**Analysis of Energy Conservation Program Costs**

**Actual Compared to Estimated/Actual**

	Actual	Est/Actual	Difference
	\$	\$	\$
1. Depreciation, Return & Property Tax	2,555,257.63	2,550,171.98	5,085.65
2. Payroll & Benefits	4,443,753.87	4,370,751.40	73,002.47
3. Materials & Supplies	3,950,421.83	4,167,316.31	(216,894.48)
4. Advertising	571,444.61	616,646.98	(45,202.37)
5. Incentives	333,679.75	571,315.50	(237,635.75)
6. Adjustments	0.00	0.00	0.00
7. Other	0.00	0.00	0.00
8. Subtotal	11,854,557.69	12,276,202.17	(421,644.48)
9. Program Revenues	0.00	0.00	0.00
10. Total Program Costs	11,854,557.69	12,276,202.17	(421,644.48)
11. Less: Payroll Adjustment	0.00	0.00	0.00
12. Amounts Inc. in Base Rate	0.00	0.00	0.00
13. Conservation Adjustment Revenues	15,354,375.56	15,733,130.11	(378,754.55)
14. Rounding Adjustment	15,354,376.00	15,733,130.00	(378,754.00)
15. True-up Before Adjustment Over/(Under) Recovery	3,499,817	3,456,928	42,889
16. Interest Provision	(16,301)	(16,518)	217
17. Prior Period True-up	(3,583,812)	(3,583,812)	0
18. Other	0	0	0
19. End of Period True-up	(100,296)	(143,402)	43,106

**Gulf Power Company**

ENERGY CONSERVATION COST RECOVERY (ECCR)  
Calculation of the Final True-Up Amount

For the Period: January 2017 - December 2017

**Conservation Costs By Program  
Variance Actual Vs. Estimated/Actual**

Program	Capital Return, Property Taxes & Depreciation	Payroll & Benefits	Material	Other	Advertising	Incentives	Sub-Total	Program Revenues	Total
<b>Residential Conservation Programs:</b>									
1. Residential Energy Audit and Education	0.50	44,769.56	39,828.96	0.00	(54,109.43)	0.00	30,489.59	0.00	30,489.59
2. Community Energy Saver	0.00	(7,145.45)	(12,259.87)	0.00	0.00	0.00	(19,405.32)	0.00	(19,405.32)
3. Residential Custom Incentive	0.00	476.81	(134.44)	0.00	0.00	0.00	342.37	0.00	342.37
4. HVAC Efficiency	0.00	(172.61)	(177,131.48)	0.00	(19,015.00)	(135,903.00)	(332,222.09)	0.00	(332,222.09)
5. Residential Building Efficiency	0.00	(10,974.01)	(7,846.34)	0.00	0.00	(58,467.75)	(77,288.10)	0.00	(77,288.10)
6. Energy Select	5,085.15	(2,193.91)	(35,967.98)	0.00	27,922.06	0.00	(5,154.68)	0.00	(5,154.68)
<b>Commercial / Industrial Conservation Programs:</b>									
7. Commercial / Industrial Energy Audit	0.00	34,354.87	(13,463.70)	0.00	0.00	0.00	20,891.17	0.00	20,891.17
8. HVAC Retrocommissioning	0.00	2,425.50	38,638.78	0.00	0.00	(8,265.00)	32,799.28	0.00	32,799.28
9. Commercial Building Efficiency	0.00	17,045.19	(9,594.33)	0.00	0.00	(10,000.00)	(2,549.14)	0.00	(2,549.14)
10. Commercial / Industrial Custom Incentive	0.00	3,752.26	1,652.88	0.00	0.00	(25,000.00)	(19,594.86)	0.00	(19,594.86)
11. Residential Time of Use Rate Pilot	0.00	365.12	(6,724.86)	0.00	0.00	0.00	(6,359.74)	0.00	(6,359.74)
12. Conservation Demonstration and Development:	0.00	299.14	9.59	0.00	0.00	0.00	308.73	0.00	308.73
13. Critical Peak Option	0.00	(10,000.00)	(33,901.69)	0.00	0.00	0.00	(43,901.69)	0.00	(43,901.69)
14. Less Base Rate Recovery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15. Total All Programs	5,085.65	73,002.47	(216,894.48)	0.00	(45,202.37)	(237,635.75)	(421,644.48)	0.00	(421,644.48)

**Gulf Power Company**

ENERGY CONSERVATION COST RECOVERY (ECCR)  
Calculation of the Final True-Up Amount  
For the Period: January 2017 - December 2017

**Conservation Costs By Program  
Actual Expenses**

Program	Capital Return, Property Taxes & Depreciation	Payroll & Benefits	Material & Expenses	Other	Advertising	Incentives	Sub-Total	Program Revenues	Total
<b>Residential Conservation Programs:</b>									
1. Residential Energy Audit and Education	0.50	1,563,197.21	337,078.60	0.00	248,522.57	0.00	2,148,798.88	0.00	2,148,798.88
2. Community Energy Saver	0.00	84,535.03	656,231.13	0.00	0.00	0.00	740,766.16	0.00	740,766.16
3. Residential Custom Incentive	0.00	61,785.19	2,153.83	0.00	0.00	0.00	63,939.02	0.00	63,939.02
4. HVAC Efficiency	0.00	298,413.17	545,026.52	0.00	(5,000.02)	140,097.00	978,536.67	0.00	978,536.67
5. Residential Building Efficiency	0.00	282,064.34	(18,487.56)	0.00	0.00	156,532.25	420,109.03	0.00	420,109.03
6. Energy Select	2,555,257.13	1,023,008.15	1,803,100.50	0.00	327,922.06	0.00	5,709,287.84	0.00	5,709,287.84
<b>Commercial / Industrial Conservation Programs:</b>									
7. Commercial / Industrial Energy Audit	0.00	613,804.50	67,824.73	0.00	0.00	0.00	681,629.23	0.00	681,629.23
8. HVAC Retrocommissioning	0.00	65,003.95	41,170.97	0.00	0.00	16,735.00	122,909.92	0.00	122,909.92
9. Commercial Building Efficiency	0.00	352,586.83	16,906.63	0.00	0.00	20,315.50	389,808.96	0.00	389,808.96
10. Commercial / Industrial Custom Incentive	0.00	57,498.70	4,248.61	0.00	0.00	0.00	61,747.31	0.00	61,747.31
11. Residential Time of Use Rate Pilot	0.00	23,021.22	16,927.23	0.00	0.00	0.00	39,948.45	0.00	39,948.45
<b>Conservation Demonstration and Development:</b>									
a. Tesla Powerwall Demand Response	0.00	6,278.52	2,215.69	0.00	0.00	0.00	8,494.21	0.00	8,494.21
b. Tesla Powerwall Demand Photovoltaic	0.00	6,278.53	3,485.74	0.00	0.00	0.00	9,764.27	0.00	9,764.27
c. Domestic Hot Water Analysis	0.00	6,278.53	3,031.08	0.00	0.00	0.00	9,309.61	0.00	9,309.61
d. Eaton Smart Breaker Demonstration	0.00	0.00	2,222.82	0.00	0.00	0.00	2,222.82	0.00	2,222.82
e. Total	0.00	18,835.58	10,955.33	0.00	0.00	0.00	29,790.91	0.00	29,790.91
13. Critical Peak Option	0.00	0.00	467,285.31	0.00	0.00	0.00	467,285.31	0.00	467,285.31
14. Total All Programs	2,555,257.63	4,443,753.87	3,950,421.83	0.00	571,444.61	333,679.75	11,854,557.69	0.00	11,854,557.69

**Gulf Power Company**  
ENERGY CONSERVATION COST RECOVERY (ECCR)  
Calculation of the Final True-Up Amount  
For the Period: January 2017 - December 2017  
**Conservation Costs By Program**  
**Summary of Actual Expenses By Program By Month**

Program	January	February	March	April	May	June	July	August	September	October	November	December	Total
<b>Residential Conservation Programs:</b>													
1. Residential Energy Audit and Education Amortization & Return on Investment	133,582.82	149,980.49	172,587.56	143,636.01	158,249.84	152,433.57	199,593.94	321,821.28	249,180.03	180,550.88	135,782.38	151,399.58	2,148,798.38
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
<b>Total</b>	<b>133,582.82</b>	<b>149,980.49</b>	<b>172,587.56</b>	<b>143,636.01</b>	<b>158,249.84</b>	<b>152,433.57</b>	<b>199,593.94</b>	<b>321,821.28</b>	<b>249,180.03</b>	<b>180,550.88</b>	<b>135,782.38</b>	<b>151,400.08</b>	<b>2,148,798.88</b>
2. Community Energy Saver	66,835.09	49,512.58	58,051.11	55,344.21	45,812.31	57,474.63	85,890.88	5,379.08	134,014.22	67,929.19	60,057.60	54,765.26	740,766.16
3. Residential Custom Incentive	5,366.46	4,852.54	5,500.26	5,171.30	5,595.90	5,312.19	5,588.25	5,403.56	5,709.44	4,082.48	5,112.21	6,244.43	63,999.02
4. HVAC Efficiency	78,352.93	111,353.36	95,647.40	76,334.59	109,198.25	90,559.03	53,360.41	72,938.99	102,958.14	92,752.42	40,233.27	54,847.88	978,536.67
5. Residential Building Efficiency	40,037.81	34,007.00	65,523.38	44,334.77	32,702.20	(17,851.03)	33,330.40	52,444.14	30,396.03	30,039.85	38,612.97	36,531.51	420,109.03
6. Energy Select	204,607.92	207,367.89	155,817.93	439,735.69	353,324.22	205,558.81	272,967.73	256,869.45	258,945.20	219,785.69	238,091.61	340,958.57	3,154,030.71
Amortization & Return on Investment	201,886.72	202,363.42	202,601.26	211,755.56	213,158.45	213,605.09	214,587.63	215,998.43	217,868.50	219,388.84	220,484.84	221,558.39	2,555,257.13
<b>Total</b>	<b>406,494.64</b>	<b>409,731.31</b>	<b>358,419.19</b>	<b>651,491.25</b>	<b>566,482.67</b>	<b>419,163.90</b>	<b>487,555.36</b>	<b>472,867.88</b>	<b>476,813.70</b>	<b>439,174.53</b>	<b>458,576.45</b>	<b>562,516.96</b>	<b>5,709,287.84</b>
<b>Commercial / Industrial Conservation Programs:</b>													
7. Commercial / Industrial Energy Audit	55,894.31	51,063.03	53,313.11	57,552.05	54,080.36	58,466.20	57,487.85	50,755.54	60,999.27	46,969.13	56,362.80	78,685.58	681,629.23
8. HVAC Retrocommissioning	5,337.69	5,179.93	5,644.39	5,266.12	5,707.24	5,420.27	10,159.72	13,708.50	17,493.28	13,469.23	26,506.10	9,017.45	122,909.92
9. Commercial Building Efficiency	37,771.30	35,154.92	28,698.35	31,684.26	32,108.70	9,169.57	37,120.21	30,518.09	40,720.95	28,392.65	30,165.08	48,304.88	389,808.96
10. Commercial / Industrial Custom Incentive	4,639.90	4,451.74	4,932.32	4,535.42	4,983.76	4,628.03	5,431.09	5,195.58	6,231.96	4,132.32	4,794.58	7,790.61	61,747.31
<b>11. Residential Time of Use Rate Pilot</b>	<b>2,231.83</b>	<b>2,040.73</b>	<b>10,749.27</b>	<b>1,986.48</b>	<b>4,109.22</b>	<b>2,036.66</b>	<b>2,055.08</b>	<b>3,013.00</b>	<b>4,483.42</b>	<b>2,967.82</b>	<b>2,038.01</b>	<b>2,236.93</b>	<b>39,948.45</b>
<b>12. Conservation Demonstration and Development:</b>													
a. Tesla Powerwall Demand Response	558.78	2,222.15	596.20	541.76	565.29	559.46	625.63	548.96	582.18	532.01	551.74	610.05	8,494.21
b. Tesla Powerwall Demand Photovoltaic	1,873.12	3,931.15	(1,129.13)	541.76	601.17	543.41	566.44	561.06	581.48	532.01	551.74	610.06	9,764.27
c. Domestic Hot Water Analysis	573.72	515.69	596.19	541.76	565.29	543.41	534.34	532.91	620.48	3,074.58	576.46	634.78	9,309.61
d. Eaton Smart Breaker Demonstration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,222.82	0.00	2,222.82
<b>e. Total</b>	<b>3,005.62</b>	<b>6,668.99</b>	<b>63.26</b>	<b>1,625.28</b>	<b>1,731.75</b>	<b>1,646.28</b>	<b>1,726.41</b>	<b>1,642.93</b>	<b>1,784.14</b>	<b>4,138.60</b>	<b>3,902.76</b>	<b>1,854.89</b>	<b>29,790.91</b>
<b>13. Critical Peak Option</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>80,923.96</b>	<b>80,752.28</b>	<b>78,550.21</b>	<b>78,460.64</b>	<b>57,716.45</b>	<b>90,881.77</b>	<b>467,285.31</b>
<b>14. Total All Programs</b>	<b>839,550.40</b>	<b>863,996.62</b>	<b>859,129.60</b>	<b>1,078,961.74</b>	<b>1,020,762.20</b>	<b>788,459.30</b>	<b>1,060,223.56</b>	<b>1,116,440.85</b>	<b>1,209,334.79</b>	<b>992,759.74</b>	<b>919,860.66</b>	<b>1,105,078.23</b>	<b>11,854,557.69</b>

**Gulf Power Company**  
**ENERGY CONSERVATION COST RECOVERY (ECCR)**  
 Calculation of the Final True-Up Amount  
**For the Period: January 2017 - December 2017**

**Conservation Costs By Program**  
**Calculation of Over/Under Recovery**

Conservation Revenues	January	February	March	April	May	June	July	August	September	October	November	December	Total
1. EnergySelect RSVP Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. Over/(Under) Recovery	1,039,507.52 (276,115.00)	918,715.46 (276,117.00)	1,087,080.00 (276,117.00)	1,089,569.55 (276,117.00)	1,385,178.41 (276,117.00)	1,438,808.76 (276,117.00)	1,748,223.31 (276,117.00)	1,749,647.25 (276,117.00)	1,447,521.34 (276,117.00)	1,371,602.47 (276,117.00)	989,312.82 (276,117.00)	1,089,208.67 (276,117.00)	15,354,375.56 (3,313,402.00)
3. Total Revenues	1,039,507.52 (276,115.00)	918,715.46 (276,117.00)	1,087,080.00 (276,117.00)	1,089,569.55 (276,117.00)	1,385,178.41 (276,117.00)	1,438,808.76 (276,117.00)	1,748,223.31 (276,117.00)	1,749,647.25 (276,117.00)	1,447,521.34 (276,117.00)	1,371,602.47 (276,117.00)	989,312.82 (276,117.00)	1,089,208.67 (276,117.00)	15,354,375.56 (3,313,402.00)
4. Adjustment not Applicable to Period - Prior True Up													
5. Conservation Revenues Applicable to Period	763,392.52	642,598.46	810,963.00	813,452.55	1,109,061.41	1,162,691.76	1,472,106.31	1,473,530.25	1,171,404.34	1,095,485.47	713,195.82	813,091.67	12,040,973.56
6. Conservation Expenses (CT-3, Page 3, Line 14)	839,550.40	863,996.62	859,129.60	1,078,961.74	1,020,762.20	788,459.30	1,060,223.56	1,116,440.85	1,209,334.79	992,759.74	919,860.66	1,105,078.23	11,854,557.69
7. True Up this Period (Line 5 - 6)	(76,157.88)	(221,398.16)	(48,166.60)	(265,509.19)	88,299.21	374,232.46	411,882.75	357,089.40	(37,930.45)	102,725.73	(206,664.84)	(291,986.56)	186,415.87
8. Interest Provision this Period (CT-3, Page 5, Line 11)	(2,119.33)	(1,931.20)	(2,119.31)	(2,326.54)	(2,199.80)	(2,039.88)	(1,599.17)	(986.04)	(485.41)	(267.10)	(118.43)	(108.78)	(16,300.99)
9. True Up & Interest Provision Beginning of Month	(3,583,812.66)	(3,385,974.87)	(3,333,187.23)	(3,107,356.14)	(3,099,074.87)	(2,736,858.46)	(2,088,548.88)	(1,402,148.30)	(769,927.94)	(532,226.80)	(153,651.17)	(84,317.44)	(3,583,812.66)
10. Prior True Up Collected or Refunded	276,115.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	276,117.00	3,313,402.00
11. End of Period- Net True Up	(3,385,974.87)	(3,333,187.23)	(3,107,356.14)	(3,099,074.87)	(2,736,858.46)	(2,088,548.88)	(1,402,148.30)	(769,927.94)	(532,226.80)	(153,651.17)	(84,317.44)	(100,295.78)	(100,295.78)

**Gulf Power Company**  
ENERGY CONSERVATION COST RECOVERY (ECCR)  
Calculation of the Final True-Up Amount  
For the Period: January 2017 - December 2017

**Computation of Interest Expense  
Energy Conservation Adjustment**

Interest Provision	January	February	March	April	May	June	July	August	September	October	November	December	Total
1. Beginning True up Amount	(3,583,812.66)	(3,395,974.87)	(3,333,187.23)	(3,107,356.14)	(3,099,074.87)	(2,736,858.46)	(2,085,548.88)	(1,402,148.30)	(769,927.94)	(532,226.80)	(153,651.17)	(84,317.44)	
2. Ending True up before Interest	(3,383,855.54)	(3,331,256.03)	(3,105,236.83)	(3,096,748.33)	(2,734,658.66)	(2,086,509.00)	(1,400,549.13)	(768,941.90)	(531,741.39)	(153,384.07)	(84,199.01)	(100,187.00)	
3. Total beginning & ending	(6,967,668.20)	(6,717,230.90)	(6,438,424.06)	(6,204,104.47)	(5,833,733.53)	(4,823,367.46)	(3,489,098.01)	(2,171,090.20)	(1,301,669.33)	(685,610.87)	(237,850.18)	(184,504.44)	
4. Average True up Amount	(3,483,834.10)	(3,358,615.45)	(3,219,212.03)	(3,102,052.24)	(2,916,866.77)	(2,411,683.73)	(1,744,549.01)	(1,085,545.10)	(650,834.66)	(342,805.43)	(118,925.09)	(92,252.22)	
5. Interest Rate First Day Reporting Business Month	0.7200	0.7400	0.6400	0.9400	0.8600	0.9500	1.0800	1.1200	1.0600	0.7300	1.1400	1.2500	
6. Interest Rate First Day Subsequent Business Month	0.7400	0.6400	0.9400	0.8600	0.9500	1.0800	1.1200	1.0600	0.7300	1.1400	1.2500	1.5800	
7. Total of Lines 5 and 6	1.4600	1.3800	1.5800	1.8000	1.8100	2.0300	2.2000	2.1800	1.7900	1.8700	2.3900	2.8300	
8. Average Interest rate (50% of Line 7)	0.7300	0.6900	0.7900	0.9000	0.9050	1.0150	1.1000	1.0900	0.8950	0.9350	1.1950	1.4150	
9. Monthly Average Interest Rate Line 8 \ 12	0.000608	0.000575	0.000658	0.000750	0.000754	0.000846	0.000917	0.000908	0.000746	0.000779	0.000996	0.001179	
10. Interest Adjustment	(2,119.33)	(1,931.20)	(2,119.31)	(2,326.54)	(2,199.80)	(2,039.88)	(1,599.17)	(986.04)	(485.41)	(267.10)	(118.43)	(108.78)	
11. Interest Provision (Line 4 X 9)													(16,300.99)



**Gulf Power Company**  
**ENERGY CONSERVATION COST RECOVERY (ECCR)**  
 Calculation of the Final True-Up Amount  
**For the Period: January 2017 - December 2017**

**Schedule of Capital Investment, Depreciation and Return  
 Energy Select**

Line No. Description	Beginning of Period	January	February	March	April	May	June	July	August	September	October	November	December	Total
1 Investments Added to Plant In Service (Net of Retirements)		86,808.76	87,539.11	100,201.78	278,547.13	54,241.58	59,630.77	66,486.71	152,402.17	172,697.83	22,014.53	387,388.84	155,356.26	
2 Depreciable Base (Cumulative Plant Additions PM Ln 2 + CM Ln 1)	14,798,109.54	14,884,918.30	14,972,457.41	15,072,659.19	15,351,206.32	15,405,447.90	15,465,078.67	15,586,002.25	15,714,576.32	15,833,659.99	15,988,886.71	16,106,553.62	16,214,255.60	
3 Depreciation Expense (Note A)		34,035.65	34,235.31	34,436.65	34,667.12	35,307.77	35,432.53	35,569.68	35,847.81	36,143.53	36,417.42	36,774.44	37,045.07	425,912.98
4 Salvage, Cost of Removal and Retirement		(6,271.03)	(1,924.73)	19,410.48	(13,181.62)	(3,340.19)	10,600.14	(16,891.57)	(33,856.88)	(4,574.89)	2,805.52	(8,295.36)	(15,372.50)	
5 Less: Accum. Depr. COR and Sal. (PM Ln 5 + CM Ln 3 + 4)	(8,098,295.91)	(8,070,531.29)	(8,038,220.71)	(7,984,373.58)	(7,962,888.08)	(7,930,920.50)	(7,884,887.83)	(7,866,209.72)	(7,864,218.79)	(7,832,650.15)	(7,793,427.21)	(7,764,948.13)	(7,743,275.56)	
6 Net Plant In Service (CM Ln 2 - CM Ln 5)	22,896,405.45	22,955,449.59	23,010,678.12	23,057,032.77	23,314,094.40	23,336,368.40	23,349,966.50	23,452,211.97	23,578,795.11	23,666,310.14	23,782,313.92	23,871,501.75	23,957,531.16	
7 Net Additions/Reductions to CWIP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8 CWIP Balance (PM Ln 8 + CM Ln 7)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9 Inventory	581,105.07	570,634.43	550,014.60	480,010.89	434,326.65	418,065.95	490,262.48	543,370.36	584,498.13	778,317.25	736,499.70	783,901.36	790,297.91	
10 Net Investment (CM Ln 6 + CM Ln 8 + CM Ln 9)	23,477,510.52	23,526,084.02	23,560,692.72	23,537,043.66	23,748,421.05	23,754,454.35	23,840,228.98	23,995,582.33	24,163,293.24	24,444,627.39	24,518,813.62	24,655,403.11	24,747,829.07	
11 Average Net Investment (PM Ln 10 + CM Ln 10/2)	23,501,797.27	23,543,388.37	23,548,868.19	23,642,732.36	23,751,437.70	23,797,341.67	23,917,905.66	24,079,437.79	24,303,960.32	24,481,720.51	24,587,108.37	24,701,616.09	24,701,616.09	
12 Rate of Return / 12 (Note B)	0.006661	0.006661	0.006661	0.006661	0.007012	0.007012	0.007012	0.007012	0.007012	0.007012	0.007012	0.007012	0.007012	
13 Return Requirement on Average Net Investment (CM Ln 11 * CM Ln 12)	156,545.47	156,822.51	156,859.01	165,782.84	166,545.08	166,866.96	167,712.35	168,845.02	170,419.37	171,665.82	172,404.80	173,207.73	173,207.73	
14 Property Tax	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.60	11,305.59	135,667.19
15 Total Depreciation, Prop Taxes & Return (CM Ln 3 + CM Ln 13 + CM Ln 14)	201,886.72	202,363.42	202,801.26	211,755.56	213,158.45	213,605.09	214,587.63	215,998.43	217,888.50	219,388.84	220,484.84	221,568.39	221,568.39	2,553,257.13

Notes:  
 (A) Energy Select Property Additions Depreciated at 2.7% per year.  
 (B) Revenue Requirement Return (includes Income Taxes) is: Jan - Mar 7.9932%; Apr - Jun 8.4144%; Jul - Dec 8.4144%.

**CT-5**

GULF POWER COMPANY

Reconciliation and Explanation of  
Differences Between Filing and FPSC Audit  
Report for Months, January 2017 through December 2017

The audit has not been completed as of the date of this Filing.

### Program Description and Progress

Program Title: Residential Energy Audit and Education

Program Description: This program is the primary educational program to help customers improve the energy efficiency of their new or existing home by providing energy conservation advice and information that encourages the implementation of efficiency measures and behaviors resulting in energy and utility bill savings.

Program Accomplishments:

- Energy Audit – During 2017, Gulf performed 12,314 energy audits. These included 5,037 online audits, 1,289 in-home audits, and 5,988 pre-construction audits.
- School-based Awareness and Education
  - Gulf provided professional development in energy-related science and math for 88 elementary, middle, and high school teachers who reach an estimated 3,424 students. These teachers received continuing education credits as well as hands-on energy, efficiency and renewable energy classroom materials and curriculum.
  - Gulf provided workshops for instructors of student summer camps in STEM (Science Technology Engineering Math) in multiple partnerships:
    - FSU Panama City STEM Institute's Summer Camp program that reached approximately 300 eighth through tenth grade students in Bay County;
    - Bay County School District Twenty first Century Community Learning Center initiative that reached 240 fourth, fifth and sixth grade students;
    - Northwest Florida State College Kids on Campus summer program reached 210 third through eighth grade students;
  - Gulf coordinated monthly activities with student energy teams at six schools, measuring energy use at the school and creating a plan to use energy wisely at school and home. Total student reach is 180 students directly.
  - Gulf continued to provide classroom demonstrations and hands-on energy-related activities in schools on a monthly basis reaching nearly 500 students. Also, Gulf continued to provide energy-related onsite and material support for two hands-on interactive science museums which each average 100 attendees daily throughout the year. Total direct reach was 4,950 students and 94 teachers.

Program Fiscal Expenditures: For 2017, Gulf projected \$2,118,309 of expenses compared to actual expenses of \$2,148,799 resulting in a variance of \$30,490 or 1.4% over the projection.

Program Progress Summary: Since the approval of this program, Gulf Power Company has performed 241,805 residential energy surveys.

### Program Description and Progress

Program Title: Community Energy Saver Program

Program Description: This program assists low-income families with managing their energy costs. Through this program, qualifying customers receive the direct installation of conservation measures at no cost to them. The program also educates families on energy efficiency techniques and behavioral changes to help control their energy use and reduce their electricity expenses.

Program Accomplishments: During 2017, 2,500 of Gulf's customers received the measures included in this program compared to a projection of 2,500 participants, a difference of zero to the projection.

Program Fiscal Expenditures: For 2017, Gulf projected expenses for this program of \$760,171 compared to actual expenses of \$740,766 resulting in a variance of \$19,405 or 2.6% under the projection.

Program Progress Summary: A total of 17,505 customers have received the efficiency measures included in the Community Energy Saver program since the program's launch in 2011.

### Program Description and Progress

Program Title: Residential Custom Incentive Program

Program Description: This program is designed to increase energy efficiency in the residential rental property sector. This program promotes the installation of various energy efficiency measures available through other programs, such as HVAC maintenance and quality installation, high performance windows, reflective roofing and Energy Star window A/Cs. Additional incentives will be included, as appropriate, to overcome the split-incentive barrier which exists in a landlord/renter situation. Moreover, this program promotes the installation of measures included in the Community Energy Saver Program by the landlord of multi-family properties.

Program Accomplishments: During 2017, no participants enrolled in this program. While there are no participants recorded in this year, Gulf continues to work with customers in the rental property sector.

Program Fiscal Expenditures: During 2017, \$63,597 in expenses were projected, compared to actual expenses of \$63,939 resulting in a variance of \$342 or 0.5% over the projection.

Program Progress Summary: Since its launch in 2011, one customer has participated in the Landlord/Renter Custom Incentive program.

Program Description and Progress

Program Title: HVAC Efficiency Improvement Program

Program Description: This program is designed to increase energy efficiency and improve HVAC cooling system performance for new and existing homes. These efficiencies are realized through:

- HVAC maintenance
- Duct repair
- HVAC Quality Installation

Program Accomplishments: During 2017, compared to the projection for 2017, the following participation was achieved:

<b>Measure</b>	<b>2017 Year End Projection</b>	<b>2017 Actual Participation</b>	<b>Variance</b>
HVAC maintenance	3,874	1,278	(2,596)
Duct repair	1,503	478	(1,025)
HVAC Quality Installation	602	708	106

Program Fiscal Expenditures: – For 2017, Gulf projected \$1,310,759 in expenses compared to actual expenses of \$978,537 resulting in a variance of \$332,222 or 25.3% under the projection.

Program Progress Summary: Since its launch in 2013, the following participation has been achieved:

<b>Measure</b>	<b>Program to Date Actual Participation</b>
HVAC maintenance	37,793
Duct repair	21,841
HVAC Quality Installation	1,275

Program Description and Progress

Program Title: Residential Building Efficiency Program

Program Description: The Residential Building Efficiency Program is designed as an umbrella efficiency program for existing and new residential customers to encourage the installation of eligible equipment and materials as a means of reducing energy and demand. The goals of the program are to increase awareness and customer demand for energy saving measures; to increase availability and market penetration; and to contribute toward long-term energy savings and peak demand reductions.

- High Performance Windows
- Reflective Roof
- ENERGY STAR Window A/C

Program Accomplishments: During 2017, compared to the projection for 2017, the following participation was achieved:

<b>Measure</b>	<b>2017 Year End Projection</b>	<b>2017 Actual Participation</b>	<b>Variance</b>
High Performance Windows	307	295	(12)
Reflective Roof	308	206	(102)
ENERGY STAR Window A/C	28	9	(19)

Program Fiscal Expenditures: For 2017, Gulf projected \$497,397 in expenses compared to actual expenses of \$420,109 resulting in a variance of \$77,288 or 15.5% under the projection.

Program Progress Summary: Since its launch in 2011, the following participation has been achieved:

<b>Measure</b>	<b>Program to Date Actual Participation</b>
High Performance Windows	5,010
Reflective Roof	1,607
ENERGY STAR Window A/C	823



### Program Description and Progress

Program Title: Energy *Select*

Program Description: The overall program is designed to provide customers with a means of controlling their energy purchases by conveniently programming their heating and cooling systems and major appliances, such as electric water heaters and pool pumps, to respond automatically to prices that vary during the day and by season in relation to the Company's cost of producing or purchasing energy.

Program Accomplishments: During 2017, the Energy *Select* program experienced a net addition of 1,439 participants compared to a projection of 1,600 or 161 under the projection.

Program Fiscal Expenditures: During 2017, there were projected expenses of \$5,714,443 compared with actual expenses of \$5,709,288. This results in a deviation of \$5,155 or 0.1% under the projection.

Program Progress Summary: As of December 2017, there are 19,159 customers participating in the Energy *Select* program.

### Program Description and Progress

Program Title: Commercial/Industrial Audit

Program Description: This program is designed to provide professional advice to Gulf's existing commercial and industrial customers on how to reduce and make the most efficient use of energy. This program covers from the smallest commercial customer, requiring only a walk-through survey, to the use of computer programs which will simulate several design options for very large, energy-intensive customers. Customers may participate by requesting a basic Energy Analysis Audit (EAA) provided through either an on-site survey or an on-line survey. A more comprehensive analysis can be provided by conducting a Technical Assistance Audit (TAA).

Program Accomplishments: During 2017, the Company performed 222 commercial/industrial audits. The total projection for 2017 was 262 audits for a variance of 40 fewer participants than projected.

Program Fiscal Expenditures: For 2017, Gulf projected expenses of \$660,738 compared to actual expenses of \$681,629 for a deviation of \$20,891 or 3.2% over budget.

Program Progress Summary: Since this program was launched, 22,936 commercial/industrial audits have been performed.

### Program Description and Progress

Program Title: Commercial HVAC Retrocommissioning Program

Program Description: This program offers basic retrocommissioning at a reduced cost for qualifying installations of existing commercial and industrial customers. It is designed to diagnose the performance of the HVAC cooling unit(s) operating in commercial buildings with the support of an independent computerized quality control process and to make improvements to the system to bring it to full efficiency. This program includes air cooled and water-cooled equipment – identified as A/C, heat pump, direct expansion (DX) or geothermal cooling and heating.

Program Accomplishments: During 2017, 214 customers participated in this program compared to a projection of 60 participants, resulting in a variance of 154 more participants than projected.

Program Fiscal Expenditures: For 2017, the Company projected \$90,111 in program expenses compared to actual expenses of \$122,910 resulting in a variance of \$32,799 or 36.4% over the projection.

Program Progress Summary: Since its launch in 2011, 1,226 customers have participated in this program.

Program Description and Progress

Program Title: Commercial Building Efficiency Program

Program Description: This program is designed as an umbrella efficiency program for existing commercial and industrial customers to encourage the installation of eligible high-efficiency equipment as a means of reducing energy and demand. The goals of the program are to increase awareness and customer demand for high-efficiency, energy-saving equipment; increase availability and market penetration of energy efficient equipment; and contribute toward long-term energy savings and peak demand reductions. These goals will be accomplished through commercial geothermal heat pumps, ceiling/roof insulation, and reflective roofs.

Program Accomplishments: During 2017, compared to the 2017 projection, the measures in this program have had the following participation:

<b>Program</b>	<b>Annual Projections (2017)</b>	<b>Actual Participation (2017)</b>	<b>Variance</b>
Commercial Geothermal Heat Pump (tons of installed HVAC)	50	0	(50)
Ceiling/Roof Insulation (square feet)	26,660	19,744	(6,916)
Commercial Reflective Roof (square feet)	76,606	33,202	(43,404)

Program Fiscal Expenditures: During 2017, the Company projected \$392,358 in expenses compared to actual expenses of \$389,809 for a variance of \$2,549 or 0.6% under the projection.

Program Progress Summary: Since its launch in 2011, customer participation is shown in the table below.

<b>Program</b>	<b>Program to Date Participation</b>
Commercial Geothermal Heat Pump (tons of installed HVAC)	578
Ceiling/Roof Insulation (square feet)	368,002
Commercial Reflective Roof (square feet)	3,307,556

### Program Description and Progress

Program Title: Commercial/Industrial Custom Incentive

Program Description: This program is designed to establish the capability and process to offer advanced energy services and energy efficient end-user equipment to Commercial/Industrial customers. These energy services include comprehensive audits, design, and construction of energy conservation projects. Specifically, projects covered under this program would be demand reduction or efficiency improvement retrofits that are beyond the scope of other programs.

Program Accomplishments: During 2017, 1 customer participated in this program.

Program Fiscal Expenditures: During the reporting period, the Company projected expenses of \$81,342 compared to actual expenses of \$61,747 resulting in a variance of \$19,595, or 24.1% under the projection.

Program Progress Summary: Since its launch in 2011, 16 customers have participated in the Commercial/Industrial Custom Incentive program resulting in at the meter reductions of 8,770,333 kWh (energy), 1,341 winter kW (demand) and 1,751 summer kW (demand).

### Program Description and Progress

Program Title: Critical Peak Option (CPO)

Program Description: This program offers customers on Gulf Power's Large Power Time of Use (LPT) rate schedule an option to receive credits for capacity that can be reduced during peak load conditions (critical peak events). The program provides a fixed, per KW credit for measured On-Peak Demand and a Critical Peak Demand Charge for any measured demand recorded during a called critical peak event.

Program Accomplishments: During 2017, there were 25 customers participating in this program.

Program Fiscal Expenditures: During the reporting period, the Company projected expenses of \$511,187 compared to actual expenses of \$467,285 resulting in a variance of \$43,902, or 8.6% under the projection.

Program Progress Summary: This program became a part of Gulf's DSM Plan effective July 1, 2017, pursuant to Gulf's Stipulation and Settlement Agreement approved by the Commission in Order No. PSC-17-0178-S-EI, dated May 16, 2017.

### Program Description and Progress

Program Title: Residential Service Time of Use Pilot Program

Program Description: The Residential Service Time of Use (RSTOU) rate pilot provides residential customers the opportunity to use customer-owned equipment to respond automatically to, and take advantage of, a variable pricing structure with a critical peak credit component. In order to control program expenses and facilitate monitoring and evaluation, participation in the pilot is limited to 400 residential customers who meet the program standards. To further encourage customers to utilize a qualifying Wi-Fi enabled thermostat, the RSTOU pilot offers customers a per event credit for allowing their thermostat to automatically adjust their HVAC equipment settings during a critical event period. This option puts the customer in complete control of their energy purchase without utility-owned equipment. The objective of this pilot is to measure customers' response to a variable price rate with customer-owned equipment. Customers have an opportunity for additional savings by shifting energy purchases to the lower priced periods, while providing peak demand reduction during the high and critical periods.

Program Accomplishments: During 2017, there were 330 customers participating in this pilot.

Program Fiscal Expenditures: During 2017, the Company projected expenses of \$46,308 compared to actual expenses of \$39,948 resulting in a variance of \$6,360 or 13.7% under the projection.

Program Progress Summary: Since its launch in February 2016, 330 customers have participated in this program.

### Program Description and Progress

Program Title: Conservation Demonstration and Development

Program Description: A package of conservation programs was approved by the FPSC in Order No. 23561 for Gulf Power Company to explore and to pursue research, development, and demonstration projects designed to promote energy efficiency and conservation. This program serves as an umbrella program for the identification, development, demonstration and evaluation of new or emerging end-use technologies.

Program Accomplishments:

#### **Tesla Powerwall Demand Response (DR)**

Modern-day battery storage provided by Tesla may be able to improve the effectiveness of current “Demand Response” programs. Demand response can refer to *load shedding* as well as *load shifting*.

The Powerwall DR CDD Project evaluates the impact of:

1. *Load Shifting:* Battery storage’s ability to maximize the impact of TOU rates by charging during off-peak/low periods and discharging during on-peak/medium-high periods.
2. *Peak Reduction:* Battery storage’s ability to be dispatched at specific times (critical peak events) to supplement the demand response capability of Energy Select.

Data monitoring is used to assess the impact of battery storage in terms of performance, reliability, economic return on investment, from the perspective of the customer and the utility.

Tesla’s daily cycle 6.4kWh Powerwall is interconnected to a SolarEdge StorEdge inverter and existing Energy Select equipment. TOU times and critical peak dispatches are accessed through the inverter’s internal controls. Third parties have been contracted to install the equipment, monitor the various outputs of the system, compile the data for further analysis and provide a final report on the project by mid-year 2018.

#### **Tesla Powerwall Demand Photovoltaic (PV)**

Modern-day battery storage provided by Tesla may be able to overcome two of the typical shortcomings of grid-tied solar photovoltaics: the limited “daytime” periods of generation and the intermittency of output (due to shade or cloud cover).



The Powerwall PV CDD Project evaluates the impact of:

1. *Solar Shifting*: Battery storage's impact on peak demand by charging during the normal PV generation period and discharging during on-peak/medium-high periods.
2. *Solar Smoothing*: Battery storage's ability to stabilize the PV output during adverse weather conditions / cloud cover or shading caused by obstructions.

Data monitoring is used to assess the impact of battery storage in terms of performance, reliability, economic return on investment, from the perspective of the customer and the utility.

Tesla's daily cycle 6.4kWh Powerwall is interconnected to a SolarEdge StorEdge inverter and a retrofitted/existing 5kW photovoltaic installation. Charge and discharge time periods are programmed within the inverter's internal controls. Third parties have been contracted to install the equipment, monitor the various outputs of the system, compile the data for further analysis and provide a final report on the project by mid-year 2018.

### **Domestic Hot Water Analysis**

This project aims to address an underserved area of the heat pump water heating market: small commercial buildings. Specific focus was paid to the food service industry due to their potential for large domestic hot water usage. These building types are too small and cannot handle the capital intensity of large, engineered heat pump water heating systems; and it is unknown if their usage patterns could be supported by an integrated, residential-sized heat pump water heater. Thus, this project's objectives are as follows:

- Identified customers for participation in this study: Fast food, sandwich shops, cafeteria-style eateries, convenience stores, small laundries, and salons
- Collected number of and type of hot water end uses at each site.
- Installed field monitoring on 10 small commercial building types.
- Collected up to six months of hot water usage data at each site.
- Analyzed the collected data to develop usage patterns for each site.
- Produced a final report including recommendations to manufacturers on optimal approaches to the small commercial heat pump water heater market.

Collected data was used to produce daily water consumption load shapes for each site type. The data was analyzed and reviewed to determine the proper sizing of heat pump water heaters that will support the average recognized usage patterns.

Based on the data, a residential-sized heat pump water heater will handle the hot water needs in the small commercial food service industry. The data was shared with manufacturers to show their product development organization the need for a commercial grade heat pump water heater that fits in a residential-sized water heater footprint.

#### **Eaton Smart Breaker Test**

This test evaluates the potential demand limiting or reduction capabilities and techniques of Eaton's "smart circuit breaker" which has remote control and advanced metering built into the circuit breaker. A secondary goal is to identify use cases that will improve energy efficiency in a connected home environment.

The research data from this project provides information on how to design a program within the connected home space. These devices will potentially be coupled with other platforms to enhance demand response and energy efficiency program offerings.

Program Fiscal Expenditures: Program expenses were forecasted at \$29,482 for the period January through December 2017 compared to actual expenses of \$29,791 for a deviation of \$309 or 1.0% over the projection. Project expenses were as follows: Tesla Powerwall Demand Response, \$8,494; Tesla Powerwall Demand Photovoltaic, \$9,764; Domestic Hot Water Analysis, \$9,310 and Eaton Smart Breaker, \$2,223.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: **Energy Conservation Cost** )  
**Recovery Clause** )

Docket No.: 20180002-EG

**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a true copy of the foregoing was furnished by electronic mail this 1st day of May, 2018 to the following:

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