

2016 ANNUAL CONSERVATION REPORT

PREPARED FOR

Florida Public Utilities Company

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1 Introduction

This document contains Florida Public Utilities Company's (FPUC) annual report summarizing its demand-side management activities and the total actual achieved results for its approved DSM goals for the 2016 calendar year in accordance with 25-17.0021 (5) FAC. FPUC's 2014 conservation goals were approved in Order No. PSC-14-0696-FOF-EU dated December 29, 2014. In this document, FPUC's conservation plan performance for 2015 is compared to the 2014 goals. FPUC's 2015 Demand-Side Management (DSM) Plan, which was developed to meet the 2014 conservation goals, significantly changed FPUC's conservation programs. These changes were implemented with the approval of the 2015 DSM plan with Consummating Order No. PSC-15-0326-PAA-EG dated August 11, 2015.

2 Comparison to 2014 Goals

Tables 2-1 through 2-6 present FPUC's 2016 demand and energy conservation program savings compared to the 2015 goals for residential, commercial/industrial, and total both at the generator and meter. Order No. PSC-14-0696-FOF-EU only specifies goals at the generator. For Tables 2-4 through 2-6 at the meter, the goals from PSC-14-0696-FOF-EU are reduced by losses. Detailed performance of the individual programs is shown in Section 3.0.

Table 2-1 Residential Class Programs (At the Generator)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.43	0.012	3464.61%	0.76	0.036	2000.46%	1.46	0.023	6245.17%
2016	0.39	0.012	3250.00%	0.63	0.036	1750.00%	1.34	0.023	5826.07%

Table 2-2 Commercial/Industrial Class Programs (At the Generator)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.00	0.010	-78.20%	0.00	0.021	-81.14%	0.01	0.055	-86.28%
2016	0.09	0.010	900.00%	0.15	0.021	714.29%	0.46	0.055	836.36%

Table 2-3 Total Savings Across All Programs and Classes (At the Generator)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.43	0.022	1854.24%	0.76	0.057	1233.55%	1.47	0.078	1780.69%
2016	0.48	0.022	2181.81%	0.78	0.057	1368.42%	1.80	0.078	2307.69%

Table 2-4 Residential Class Programs (At the Meter)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.39	0.011	3463.73%	0.69	0.033	2000.30%	1.42	0.022	6245.22%
2016	0.32	0.011	2909.10%	0.61	0.033	1848.48%	1.28	0.022	5818.18%

Table 2-5 Commercial/Industrial Class Programs (At the Meter)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.00	0.009	-78.27%	0.00	0.019	-81.18%	0.01	0.053	-86.28%
2016	0.08	0.009	888.89%	0.13	0.019	684.21%	0.44	0.053	830.19%

Table 2-6 Total Savings Across All Programs and Classes (At the Meter)

Year	Winter Peak (MW) Reduction			Summer Peak (MW) Reduction			GWh Energy Reduction		
	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	0.39	0.020	1853.73%	0.69	0.052	1233.44%	1.42	0.076	1780.70%
2016	0.40	0.020	2000.00%	0.74	0.052	1423.07%	1.72	0.076	2263.16%

In 2016, FPUC significantly exceeded the residential winter peak, summer peak, and energy reduction goals. The main reason for this level of exceedance is due to higher than projected participation in the Residential Heating and Cooling Upgrade Program. Individual residential program participation is discussed further in Section 3.

In 2016, FPUC exceeded the commercial/industrial winter peak demand goal, the summer peak demand goal, and energy goals. Individual commercial/industrial program participation is discussed further in Section 3.

FPUC significantly exceeded all three of its overall goals for 2016.

3 Existing Programs and 2014 Goals

FPUC's 2015 Demand-Side Management Plan was approved in August 2015. Under this plan, FPUC implemented the following quantifiable programs.

- Residential Energy Survey
- Residential Heating and Cooling Upgrade
- Commercial Heating and Cooling Upgrade
- Commercial Chiller
- Commercial Reflective Roof

Tables 3-1 through 3-7 present the performance for each of the programs.

Table 3-1 Residential Energy Survey Current Participation and Expected Future Savings

Year	Number of Customers	Number of Eligible Customers	Annual Program Participants	Cumulative Program Participants	Total Penetration Level
2015	23,284	23,284	354	354	1.52%
2016	23,335	23,335	280	634	1.95%
2017	23,387	23,387	100	734	2.37%
2018	23,513	23,513	100	834	2.78%
2019	23,639	23,639	100	934	3.19%
2020	23,766	23,766	100	1034	3.59%
2021	23,894	23,894	100	1134	3.99%
2022	24,022	24,022	100	1234	4.39%
2023	24,151	24,151	100	1334	4.78%
2024	24,281	24,281	100	1434	5.16%

Year	Actual/ Projected Participants	Reduction Per Installation			Total Annual Reduction		
		kWh	Winter kW	Summer kW	kWh	Winter kW	Summer kW
At The Meter							
2015	354	141	0.057	0.049	50,065	20	17
2016	280	141	0.057	0.049	14,143	6	5
2017	100	141	0.057	0.049	14,143	6	5
2018	100	141	0.057	0.049	14,143	6	5
2019	100	141	0.057	0.049	14,143	6	5
2020	100	141	0.057	0.049	14,143	6	5
2021	100	141	0.057	0.049	14,143	6	5
2022	100	141	0.057	0.049	14,143	6	5
2023	100	141	0.057	0.049	14,143	6	5
2024	100	141	0.057	0.049	14,143	6	5
At The Generator							
2015	354	146	0.063	0.054	51,613	22	19
2016	280	146	0.063	0.054	14,580	6	5
2017	100	146	0.063	0.054	14,580	6	5
2018	100	146	0.063	0.054	14,580	6	5
2019	100	146	0.063	0.054	14,580	6	5
2020	100	146	0.063	0.054	14,580	6	5
2021	100	146	0.063	0.054	14,580	6	5
2022	100	146	0.063	0.054	14,580	6	5
2023	100	146	0.063	0.054	14,580	6	5
2024	100	146	0.063	0.054	14,580	6	5

Table 3-2 Residential Heating & Cooling Upgrade Current Participation and Expected Future Savings

Year	Number of Customers	Number of Eligible Customers	Annual Program Participants	Cumulative Program Participants	Total Penetration Level
2015	23,284	23,284	373	373	1.60%
2016	23,335	23,335	226	599	2.03%
2017	23,387	23,387	100	699	2.45%
2018	23,513	23,513	100	799	2.86%
2019	23,639	23,639	100	899	3.27%
2020	23,766	23,766	100	999	3.67%
2021	23,894	23,894	100	1099	4.07%
2022	24,022	24,022	100	1199	4.47%
2023	24,151	24,151	100	1299	4.86%
2024	24,281	24,281	100	1399	5.24%

Year	Actual/ Projected Participants	Reduction Per Installation			Total Annual Reduction		
		kWh	Winter kW	Summer kW	kWh	Winter kW	Summer kW
At The Meter							
2015	373	3,661	0.99	1.80	1,365,553	369	671
2016	226	3,661	0.99	1.80	366,100	99	180
2017	100	3,661	0.99	1.80	366,100	99	180
2018	100	3,661	0.99	1.80	366,100	99	180
2019	100	3,661	0.99	1.80	366,100	99	180
2020	100	3,661	0.99	1.80	366,100	99	180
2021	100	3,661	0.99	1.80	366,100	99	180
2022	100	3,661	0.99	1.80	366,100	99	180
2023	100	3,661	0.99	1.80	366,100	99	180
2024	100	3,661	0.99	1.80	366,100	99	180
At The Generator							
2015	373	3,774	1.087	1.976	1,407,777	405	737
2016	226	3,774	1.087	1.976	377,420	109	198
2017	100	3,774	1.087	1.976	377,420	109	198
2018	100	3,774	1.087	1.976	377,420	109	198
2019	100	3,774	1.087	1.976	377,420	109	198
2020	100	3,774	1.087	1.976	377,420	109	198
2021	100	3,774	1.087	1.976	377,420	109	198
2022	100	3,774	1.087	1.976	377,420	109	198
2023	100	3,774	1.087	1.976	377,420	109	198
2024	100	3,774	1.087	1.976	377,420	109	198

Table 3-3 Commercial Heating & Cooling Current Participation and Expected Future Savings

Year	Number of Customers	Number of Eligible Customers	Annual Program Participants	Cumulative Program Participants	Total Penetration Level
2015	4,275	4,275	2	2	0.05%
2016	4,275	4,275	4	6	0.28%
2017	4,275	4,275	10	16	0.51%
2018	4,275	4,275	10	26	0.75%
2019	4,275	4,275	10	36	0.98%
2020	4,275	4,275	10	46	1.22%
2021	4,275	4,275	10	56	1.45%
2022	4,275	4,275	10	66	1.68%
2023	4,275	4,275	10	76	1.92%
2024	4,275	4,275	10	86	2.15%

Year	Actual/Projected Participants	Reduction Per Installation			Total Annual Reduction		
		kWh	Winter kW	Summer kW	kWh	Winter kW	Summer kW
At The Meter							
2015	2	3,661	0.99	1.80	7,322	2	4
2016	4	3,661	0.99	1.80	36,610	10	18
2017	10	3,661	0.99	1.80	36,610	10	18
2018	10	3,661	0.99	1.80	36,610	10	18
2019	10	3,661	0.99	1.80	36,610	10	18
2020	10	3,661	0.99	1.80	36,610	10	18
2021	10	3,661	0.99	1.80	36,610	10	18
2022	10	3,661	0.99	1.80	36,610	10	18
2023	10	3,661	0.99	1.80	36,610	10	18
2024	10	3,661	0.99	1.80	36,610	10	18
At The Generator							
2015	2	3,774	1.09	1.98	7,548	2	4
2016	4	3,774	1.09	1.98	37,742	11	20
2017	10	3,774	1.09	1.98	37,742	11	20
2018	10	3,774	1.09	1.98	37,742	11	20
2019	10	3,774	1.09	1.98	37,742	11	20
2020	10	3,774	1.09	1.98	37,742	11	20
2021	10	3,774	1.09	1.98	37,742	11	20
2022	10	3,774	1.09	1.98	37,742	11	20
2023	10	3,774	1.09	1.98	37,742	11	20
2024	10	3,774	1.09	1.98	37,742	11	20

Table 3-4 Commercial Chiller Current Participation and Expected Future Savings

Year	Number of Customers	Number of Eligible Customers	Annual Program Participants	Cumulative Program Participants	Total Penetration Level
2015	4,275	4,275	0	0	0.00%
2016	4,275	4,285	1	1	0.02%
2017	4,275	4,294	1	2	0.05%
2018	4,275	4,317	1	3	0.07%
2019	4,275	4,340	1	4	0.09%
2020	4,275	4,364	2	6	0.14%
2021	4,275	4,387	2	8	0.18%
2022	4,275	4,411	2	10	0.23%
2023	4,275	4,435	2	12	0.27%
2024	4,275	4,458	2	14	0.31%

Year	Actual/Projected Participants	Reduction Per Installation			Total Annual Reduction		
		kWh	Winter kW	Summer kW	kWh	Winter kW	Summer kW
At The Meter							
2015	0	81,943	31.70	42.80	0	0	0
2016	1	81,943	31.70	42.80	81,943	32	43
2017	1	81,943	31.70	42.80	81,943	32	43
2018	1	81,943	31.70	42.80	81,943	32	43
2019	1	81,943	31.70	42.80	81,943	32	43
2020	2	81,943	31.70	42.80	163,886	63	86
2021	2	81,943	31.70	42.80	163,886	63	86
2022	2	81,943	31.70	42.80	163,886	63	86
2023	2	81,943	31.70	42.80	163,886	63	86
2024	2	81,943	31.70	42.80	163,886	63	86
At The Generator							
2015	0	84,477	34.80	47.00	0	0	0
2016	1	84,477	34.80	47.00	84,477	35	47
2017	1	84,477	34.80	47.00	84,477	35	47
2018	1	84,477	34.80	47.00	84,477	35	47
2019	1	84,477	34.80	47.00	84,477	35	47
2020	2	84,477	34.80	47.00	168,954	70	94
2021	2	84,477	34.80	47.00	168,954	70	94
2022	2	84,477	34.80	47.00	168,954	70	94
2023	2	84,477	34.80	47.00	168,954	70	94
2024	2	84,477	34.80	47.00	168,954	70	94

Table 3-5 Commercial Reflective Roof Current Participation and Expected Future Savings

Year	Number of Customers	Number of Eligible Customers	Annual Program Participants	Cumulative Program Participants	Total Penetration Level
2015	13,600	13,600	0	0	0.00%
2016	13,600	13,600	17	17	0.04%
2017	13,600	13,600	10	22	0.11%
2018	13,600	13,600	15	27	0.22%
2019	13,600	13,600	20	32	0.37%
2020	13,600	13,600	25	37	0.55%
2021	13,600	13,600	25	42	0.74%
2022	13,600	13,600	25	47	0.92%
2023	13,600	13,600	25	52	1.10%
2024	13,600	13,600	25	57	1.29%

Year	Actual/ Projected Participants	Reduction Per Installation			Total Annual Reduction		
		kWh	Winter kW	Summer kW	kWh	Winter kW	Summer kW
At The Meter							
2015	0	2,450	0.00	0.91	0	0	0
2016	17	2,450	0.00	0.91	12,250	0	5
2017	10	2,450	0.00	0.91	24,500	0	9
2018	15	2,450	0.00	0.91	36,750	0	14
2019	20	2,450	0.00	0.91	49,000	0	18
2020	25	2,450	0.00	0.91	61,250	0	23
2021	25	2,450	0.00	0.91	61,250	0	23
2022	25	2,450	0.00	0.91	61,250	0	23
2023	25	2,450	0.00	0.91	61,250	0	23
2024	25	2,450	0.00	0.91	61,250	0	23
At The Generator							
2015	0	2,526	0.00	0.99	0	0	0
2016	17	2,526	0.00	0.99	12,629	0	5
2017	10	2,526	0.00	0.99	25,258	0	10
2018	15	2,526	0.00	0.99	37,886	0	15
2019	20	2,526	0.00	0.99	50,515	0	20
2020	25	2,526	0.00	0.99	63,144	0	25
2021	25	2,526	0.00	0.99	63,144	0	25
2022	25	2,526	0.00	0.99	63,144	0	25
2023	25	2,526	0.00	0.99	63,144	0	25
2024	25	2,526	0.00	0.99	63,144	0	25

As shown in Table 3-1 and 3-2 above, the number of residential energy surveys and the number of participants in the heating and cooling upgrade program significantly exceeded projections. Both programs achieved over three times the level of projected participation. The high participation was responsible for significantly exceeding the program goals and residential goals.

As shown in Tables 3-3 through 3-5 above, the commercial/industrial programs included in the 2015 Demand-Side Management Plan fell short of their participation goals. The Commercial Heating & Cooling program achieved 20% of its participation goal, while the Chiller program did not have any participants. The Commercial Reflective Roof was a new program without any expected participation in 2015. Overall the commercial programs failed to meet their winter peak demand, summer peak demand, and energy reduction goals.

3.1 PROGRAM COSTS

The per installation cost and total program cost for FPUC for each program for 2016 are presented in Table 3-6 for each program. The total program costs are based on the actual 2016 costs and are a function of actual participation and actual administrative and general costs. Common costs, averaging 10%, are allocated to individual programs based on net benefit calculations.

Table 3-6 Program Costs

Program	2016 Per Installation Cost	2016 Total Program Cost
Residential Energy Survey	\$420	\$117,632
Residential Heating and Cooling Upgrade	\$176	\$39,772
Commercial Heating and Cooling Upgrade	\$3,513	\$14,050
Commercial Chiller	\$22,792	\$22,792
Commercial Energy Consultation	\$510	\$34,166
Commercial Reflective Roof	\$1,171	\$19,921

3.2 NET BENEFITS

The annual net benefits for each program are shown in Table 3-7 based on the 2016 actual program cost versus avoided costs for electricity generation, transmission, and distribution developed for the 2015 Demand-Side Management Plan. Since FPUC purchases all of its power, the avoided generation costs are based on avoiding power purchases from JEA and Gulf. In order to have a single avoided generation cost for evaluating cost effectiveness of the conservation programs, the avoided purchase power costs for JEA and Gulf were weighted averaged using the actual 2016 Net Energy for Load for the Northeast and Northwest Divisions respectively. The avoided transmission & distribution costs are based on FPUC's operation and maintenance costs from 2009-2013, escalated to 2015 dollars.

Table 3-7 Annual Net Benefits

Program	Annual Net Benefits
Residential Energy Survey	(\$42,638)
Residential Heating and Cooling Upgrade	\$1,512,508
Commercial Heating and Cooling Upgrade	\$7,710
Commercial Chiller	\$3,840
Commercial Energy Consultation	\$852
Commercial Reflective Roof	\$2,030

3.3 OTHER CONSERVATION ACTIVITIES

With the implementation of a new 2015 DSM plan, FPU has focused on providing its customers and contractors with information about its new programs in 2016. FPUC focused and will continue to focus on promoting its Commercial/Industrial programs since they have traditional not met participation levels in the past. For the Commercial Heating and Cooling and Commercial Reflective Roof programs, FPUC will continue to work with industry partners and contractors in its service territories to promote these programs to its customers. For the Commercial Chiller program, FPUC will work closely with its large commercial and industrial customers for whom this program would be beneficial. For all programs, FPUC will continue its participation in education and advertising opportunities that promote each program to its particular target audience.

FPUC continues to emphasize activities where it can reach many of their customers at one time with its conservation message. FPUC's small size and proportionate resources necessitate this approach to obtain cost effective conservation in its service area. FPUC was very effective with this approach in 2016. FPUC held or attended 11 energy conservation related events with an estimated total attendance of 10,850. These events are generally at the community level. The purpose of participating in these events is to educate FPUC's customers about energy efficiency and to offer energy conservation surveys and measures as a way to combat high electrical usage and the rising costs of energy. Conservation kits (containing two LED lightbulbs, weather stripping, etc.), energy saving tips, and conservation brochures are distributed to FPUC's customers during these events and contribute to conservation by stressing the importance of using energy efficiency as a means to reduce high energy bills. Events provide FPUC a great opportunity to interact one-on-one with consumers and to efficiently distribute FPUC's conservation kits which have a direct impact on energy consumption.

In 2014, FPUC introduced its Energy Conservation School program aimed at educating students about the basics of energy efficiency and how they could help to conserve energy in their homes. During 2016, FPUC made several presentations to schools within its territory and continues to promote this program to school boards in the area. The goal is not only to educate students who

will be future consumers of energy but for them to relay the message to their parents and get educational materials into more households.

FPUC has also continued to serve its customers through its Energy Expert program which provides resources like energy-related tips and advice, articles, videos, blog content and other downloadable materials. One of the more popular features of this program is the “Ask the Energy Expert” tool which allows customers to submit energy-related questions and receive a response from FPUC personnel. These questions and answers are also made available on the FPUC website so that other customers may benefit from the information. As part of the Energy Expert program, FPUC energy conservation employees continually work with employees from other departments to provide basic energy efficiency and conservation training. This training gives Customer Service, Sales and other customer-facing employees the training they need to address high-bill complaints and confidently speak to customers about their energy usage, energy conservation measures and the programs that are offered by FPUC. All of these customer touch points are used to promote FPUs energy conservation programs and help achieve program goals.