



Matthew R. Bernier
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Duke Energy Florida, Inc.

April 27, 2015

VIA ELECTRONIC FILING

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

Re: DEF's Petition for Approval of Demand-Side Management Plan
Docket No. 150083-EG

Dear Ms. Stauffer:

Please find attached for filing on behalf of Duke Energy Florida, Inc. ("DEF"), DEF's Response to Staff's 1st Data Request in the above-referenced docket.

The tables in Excel (.xls) format have been provided to Staff via electronic mail.

Thank you for your assistance in this matter and please let me know if you have any questions. I can be reached at (850) 521-1428.

Sincerely,

/s/ Matthew R. Bernier

Matthew R. Bernier

MRB:at
Attachment

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via electronic mail this 27th day of April, 2015, to all parties of record as indicated below.

/s/ Matthew R. Bernier

Attorney

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DEF's Response to Staff's First Data Request

1. Please provide the estimated costs of each program's incentives, administrative & equipment costs, and total costs for the ten-year goals period (nominal and net present value). Also, please provide the percentage of total costs that are used for incentives by program. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Costs (Nominal)				
Program Name	Incentives	Administrative & Equipment	Total	Percent Incentives
[Residential]				
Residential Subtotal				
[Comm/Industrial]				
Comm/Ind. Subtotal				
Common Expenses				
Total				

Program Costs (NPV)				
Program Name	Incentives	Administrative & Equipment	Total	Percent Incentives
[Residential]				
Residential Subtotal				
[Comm/Industrial]				
Comm/Ind. Subtotal				
Common Expenses				
Total				

Response:

Please see the attached DR1-Q1 Excel File.

Program Costs (\$ Nominal-millions)				
Program Name	Incentives	Administrative & Equipment	Total	Percent Incentives
Residential Incentive Program	20.3	14.7	35.0	58%
Home Energy Check	5.1	63.5	68.5	7%
Low Income Weatherization	3.9	1.6	5.6	71%
Neighborhood Energy Saver	26.0	11.1	37.1	70%
Residential Energy Management	249.5	172.9	422.4	59%
Residential Solar Photovoltaic	1.9	0.1	2.0	94%
Solar Water Heating Low Income	0.1	0.0	0.2	72%
Solar Water Heating Energy Mgmt	0.2	0.0	0.2	81%
Residential Subtotal	307.0	264.1	571.1	54%
Better Business	5.4	10.5	15.9	34%
Business Energy Check	1.9	6.5	8.4	23%
Florida Custom Incentive Program	4.1	2.0	6.1	68%
Demand Response - Interruptible	235.6	1.9	237.5	99%
Demand Response - Curtailable	9.4	0.0	9.4	100%
Demand Response - Stand-by	56.6	4.3	60.9	93%
Commercial Solar Photovoltaic	1.3	0.0	1.3	98%
Photovoltaic for Schools	1.8	0.0	1.8	98%
Commercial Subtotal	316.2	25.2	341.4	93%
Technology Development	0	8.0	8.0	0%
Solar Research & Development	0	0.3	0.3	0%
Qualifying Facilities	0	12.9	12.9	0%
Common Expenses Subtotal	-	21.2	21.2	-
Total	623.2	310.5	933.6	67%
	67%	33%	100%	

Program Costs (\$ NPV-millions)					
Program Name	Incentives	Administrative & Equipment	Total	Percent Incentives	
Residential Incentive Program	17.6	12.7	30.3	58%	
Home Energy Check	4.2	48.4	52.5	8%	
Low Income Weatherization	3.0	1.2	4.3	71%	
Neighborhood Energy Saver	20.0	8.5	28.5	70%	
Residential Energy Management	189.3	137.7	327.0	58%	
Residential Solar Photovoltaic	1.9	0.1	2.0	94%	
Solar Water Heating Low Income	0.1	0.0	0.2	73%	
Solar Water Heating Energy Mgmt	0.2	0.0	0.2	81%	
Residential Subtotal	236.3	208.7	445.0	53%	
Better Business	4.7	9.0	13.7	35%	
Business Energy Check	1.6	5.4	7.1	23%	
Florida Custom Incentive Program	3.1	1.5	4.6	67%	
Demand Response - Interruptible	188.3	1.4	189.7	99%	
Demand Response - Curtailable	7.6	0.0	7.6	100%	
Demand Response - Stand-by	43.6	3.3	46.9	93%	
Commercial Solar Photovoltaic	1.3	0.0	1.3	98%	
Photovoltaic for Schools	1.8	0.0	1.8	98%	
Commercial Subtotal	252.0	20.7	272.7	92%	
Technology Development	0.0	6.1	6.1	0%	
Solar Research & Development	0.0	0.3	0.3	0%	
Qualifying Facilities	0.0	9.6	9.6	0%	
Common Expenses Subtotal	0.0	16.1	16.1	0%	
Total	488.3	245.5	733.8	67%	
	67%	33%	100%		

Note: Costs included for demand response programs represent the total cost of the program for all participants. The costs included in the cost effectiveness results represent the costs for new participants.

2. Please provide the estimated costs of each program's administrative & equipment costs, costs for the ten-year goals period (nominal and net present value), broken into the categories detailed in the table below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Administrative & Equipment Costs (Nominal)									
Program Name	Depreciation & Return	Payroll & Benefits	Materials & Supplies	Outside Services	Advertising	Vehicles & Travel	Other	Revenues (if any)	Total
[Residential]									
Residential Total									
[Comm/Ind.]									
Comm/Ind. Total									
Common Expenses									
Total									

Program Administrative & Equipment Costs (NPV)									
Program Name	Depreciation	Payroll	Materials	Outside	Advertising	Vehicles	Other	Revenues	Total

	& Return	& Benefits	& Supplies	Services		& Travel		(if any)	
[Residential]									
Residential Total									
[Comm/Ind.]									
Comm/Ind. Total									
Common Expenses									
Total									

Response:

Please see the attached DR1-Q2 Excel file.

DEF's Program Plan filing included an estimate of Administrative & Equipment Costs in total for each program. DEF did not project costs by category. For purposes of this data request, DEF has estimated costs by category based on average costs for the 2011-2013 historical period.										
Program Administrative & Equipment Costs (\$ Nominal-millions)										
Program Name	Depreciation & Return	Payroll & Benefits	Materials & supplies	Outside Services	Advertising	Vehicles & Travel	Other	Revenues	Total	
Residential Incentive Program	0.1	6.6	0.0	0.4	7.0	-	0.6	-	14.7	
Home Energy Check	0.0	34.6	1.4	0.9	23.8	1.8	1.0	-	63.5	
Low Income Weatherization	-	1.3	0.0	-	0.3	-	0.1	-	1.6	
Neighborhood Energy Saver	-	7.1	0.4	0.5	1.4	1.4	0.4	-	11.1	
Residential Energy Management	83.8	39.1	0.4	38.5	6.1	1.1	3.9	-	172.9	
Residential Solar Photovoltaic	-	0.1	0.0	0.1	0.0	-	0.0	-	0.1	
Solar Water Heating Low Income	-	0.0	-	0.0	0.0	-	0.0	-	0.0	
Solar Water Heating Energy Mgmt	-	0.0	-	0.0	0.0	-	0.0	-	0.0	
Residential Subtotal	83.9	88.8	2.3	40.3	38.6	4.3	5.9	-	264.1	
Better Business	0.2	7.7	0.1	0.7	1.3	-	0.4	-	10.5	
Business Energy Check	0.0	4.4	0.0	1.4	0.3	-	0.3	-	6.5	
Florida Custom Incentive Program	-	1.1	-	-	-	-	0.9	-	2.0	
Demand Response - Interruptible	0.4	1.3	0.0	0.0	-	-	0.1	-	1.9	
Demand Response - Curtailable	-	-	-	-	-	-	-	-	-	
Demand Response - Stand-by	1.2	2.9	0.0	0.0	0.0	-	0.2	-	4.3	
Commercial Solar Photovoltaic	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	
Photovoltaic for Schools	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	
Commercial Subtotal	1.8	17.4	0.2	2.2	1.6	-	2.0	-	25.2	
Technology Development	0.1	2.8	0.0	4.9	-	0.1	0.1	-	8.0	
Solar Research & Development	-	0.0	0.0	0.1	-	-	0.2	-	0.3	
Qualifying Facilities	-	12.2	0.1	0.3	-	0.2	0.1	-	12.9	
Common Subtotal	0.1	15.0	0.1	5.2	-	0.3	0.4	-	21.2	
Total	85.8	121.2	2.6	47.7	40.2	4.6	8.4	-	310.5	
Percent Allocation	28%	39%	1%	15%	13%	1%	3%	0%	100%	

Program Administrative & Equipment Costs (\$ NPV-millions)										
Program Name	Depreciation & Return	Payroll & Benefits	Materials & supplies	Outside Services	Advertising	Vehicles & Travel	Other	Revenues	Total	
Residential Incentive Program	0.1	5.7	0.0	0.3	6.1	-	0.5	-	12.7	
Home Energy Check	0.0	26.4	1.1	0.7	18.1	1.3	0.8	-	48.4	
Low Income Weatherization	-	1.0	0.0	-	0.2	-	0.1	-	1.2	
Neighborhood Energy Saver	-	5.4	0.3	0.4	1.0	1.2	0.2	-	8.5	
Residential Energy Management	66.8	31.1	0.3	30.7	4.9	0.9	3.1	-	137.7	
Residential Solar Photovoltaic	-	0.1	0.0	0.1	0.0	-	0.0	-	0.1	
Solar Water Heating Low Income	-	0.0	-	0.0	0.0	-	0.0	-	0.0	
Solar Water Heating Energy Mgmt	-	0.0	-	0.0	0.0	-	0.0	-	0.0	
Residential Subtotal	66.8	69.7	1.8	32.1	30.3	3.4	4.6	-	208.7	
Better Business	0.2	6.6	0.1	0.6	1.1	-	0.4	-	9.0	
Business Energy Check	0.0	3.7	0.0	1.2	0.2	-	0.3	-	5.4	
Florida Custom Incentive Program	-	0.8	-	-	-	-	0.7	-	1.5	
Demand Response - Interruptible	0.3	1.0	0.0	0.0	-	-	0.1	-	1.4	
Demand Response - Curtailable	-	-	-	-	-	-	-	-	-	
Demand Response - Stand-by	0.9	2.2	0.0	0.0	0.0	-	0.2	-	3.3	
Commercial Solar Photovoltaic	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	
Photovoltaic for Schools	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	
Commercial Subtotal	1.4	14.3	0.2	1.9	1.3	-	1.6	-	20.7	
Technology Development	0.1	2.1	0.0	3.8	-	0.1	0.1	-	6.1	
Solar Research & Development	-	0.0	0.0	0.3	-	-	0.0	-	0.3	
Qualifying Facilities	-	9.1	0.0	0.2	-	0.2	0.1	-	9.6	
Common Expenses	0.1	11.3	0.1	4.2	-	0.3	0.2	-	16.1	
Total	68.3	95.3	2.0	38.2	31.7	3.6	6.4	-	245.5	
Percent Allocation	28%	39%	1%	16%	13%	1%	3%	0%	100%	

3. For each program that includes “Outside Services” costs in Data Request No. 2 above, please detail what those “Outside Services” include.

Response:

Please see the attached DR1-Q3 Excel file.

DEF did not project expenses at this level of detail for the DSM Plan Filing. For purposes of responding to this data request, DEF developed an estimate of charges for outside services based on historical data.

The Outside Services category generally includes expenses for contract outside contractors, third party vendors, and contingent labor. Some specific examples by program are provided below.

	(\$ millions)	
	2015-2024	
	Outside Services	
Residential Incentive Program	0.4	
Home Energy Check	0.9	Outside contractors - kits, trade events, printing
Low Income Weatherization	-	
Neighborhood Energy Saver	0.5	Third party vendor who installs energy efficiency measures in homes
Residential Energy Management	38.5	Third party vendors who install, inspect, maintain, and remove direct load control switches
Residential Solar Photovoltaic	0.1	
Solar Water Heating Low Income	0.0	
Solar Water Heating Energy Mgmt	0.0	
Residential Subtotal	40.3	
Better Business	0.7	
Business Energy Check	1.4	Outside contractors to support audit tool/training/development of savings impacts
Florida Custom Incentive Program	-	
Demand Response - Interruptible	0.0	
Demand Response - Curtailable	-	
Demand Response - Stand-by	0.0	
Commercial Solar Photovoltaic	0.0	
Photovoltaic for Schools	0.0	
Commercial Subtotal	2.2	
Technology Development	4.9	Outside contractors to support pilot programs/research and development/testing
Solar Research & Development	0.1	
Qualifying Facilities	0.3	
Common Expenses	5.2	
Total	47.7	

4. For each program that includes “Other” costs in Data Request No. 2 above, please detail what those “Other” costs include.

Response:

Please see the attached DR1-Q4 Excel file.

DEF did not project expenses at this level of detail for the DSM Plan Filing. For purposes of responding to this data request, DEF developed an estimate of charges for outside services based on historical data. DEF has provided some examples of the types of expenses typically charged to outside services for specific programs	
Examples of expenses that are typically charged to the Other Category include - postage, printing, cellular expenses to support cellular load management devices, miscellaneous employee expenses, and miscellaneous supplies.	
	\$ millions 2015-2024 Other Expenses
Residential Incentive Program	0.6
Home Energy Check	1.0
Low Income Weatherization	0.1
Neighborhood Energy Saver	0.4
Residential Energy Management	3.9
Residential Solar Photovoltaic	0.0
Solar Water Heating Low Income	0.0
Solar Water Heating Energy Mgmt	0.0
Residential Subtotal	5.9
Better Business	0.4
Business Energy Check	0.3
Florida Custom Incentive Program	0.9
Demand Response - Interruptible	0.1
Demand Response - Curtailable	-
Demand Response - Stand-by	0.2
Commercial Solar Photovoltaic	0.0
Photovoltaic for Schools	0.0
Commercial Subtotal	2.0
Technology Development	0.1
Solar Research & Development	0.0
Qualifying Facilities	0.1
Common Expenses	0.4
Total	8.4

5. Please provide the estimated costs of each program's incentive costs, costs for the ten-year goals period (nominal and net present value), broken into the categories detailed in the table below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Incentives (Nominal)			
Program Name	Incentives (Non-Recurring)	Incentives (Recurring)	Total
[Residential]			
Residential Subtotal			
[Comm/Industrial]			
Comm/Ind. Subtotal			
Common Expenses			
Total			

Program Incentives (NPV)			
Program Name	Incentives (Non-Recurring)	Incentives (Recurring)	Total
[Residential]			
Residential Subtotal			
[Comm/Industrial]			

Comm/Ind. Subtotal			
Common Expenses			
Total			

Response:

Please see the attached DR1-Q5 Excel file.

Program Incentives Nominal			
Program Name	Incentives (Non- Recurring)	Incentives (Recurring)	Total
Residential Incentive Program	20.3	0.0	20.3
Home Energy Check	5.1	0.0	5.1
Low Income Weatherization	3.9	0.0	3.9
Neighborhood Energy Saver	26.0	0.0	26.0
Residential Energy Management	0.0	249.5	249.5
Residential Solar Photovoltaic	1.9	0.0	1.9
Solar Water Heating Low Income	0.1	0.0	0.1
Solar Water Heating Energy Mgmt	0.2	0.0	0.2
Residential Subtotal	57.5	249.5	307.0
Better Business	5.4	0.0	5.4
Business Energy Check	1.9	0.0	1.9
Florida Custom Incentive Program	4.1	0.0	4.1
Demand Response - Interruptible	0.0	235.6	235.6
Demand Response - Curtailable	0.0	9.4	9.4
Demand Response - Stand-by	0.0	56.6	56.6
Commercial Solar Photovoltaic	1.3	0.0	1.3
Photovoltaic for Schools	1.8	0.0	1.8
Commercial Subtotal	14.6	301.6	316.2
Common Expenses			
Total	72.1	551.1	623.2

Program Incentives NPV			
Program Name	Incentives		Total
	(Non-Recurring)	Incentives (Recurring)	
Residential Incentive Program	17.6	0.0	17.6
Home Energy Check	4.2	0.0	4.2
Low Income Weatherization	3.0	0.0	3.0
Neighborhood Energy Saver	20.0	0.0	20.0
Residential Energy Management	0.0	189.3	189.3
Residential Solar Photovoltaic	1.9	0.0	1.9
Solar Water Heating Low Income	0.1	0.0	0.1
Solar Water Heating Energy Mgmt	0.2	0.0	0.2
Residential Subtotal	47.0	189.3	236.3
Better Business	4.7	0.0	4.7
Business Energy Check	1.6	0.0	1.6
Florida Custom Incentive Program	3.1	0.0	3.1
Demand Response - Interruptible		188.3	188.3
Demand Response - Curtailable		7.6	7.6
Demand Response - Stand-by		43.6	43.6
Demand Response - Stand-by	1.3	0.0	1.3
Commercial Solar Photovoltaic	1.8	0.0	1.8
Commercial Subtotal	12.5	239.5	252.0
Common Expenses			
Total	59.5	428.8	488.3

6. Please provide for each program with demand and energy savings the net present value of the benefits and costs described in the Rate Impact Measure Test and detailed in the table below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Name	Benefits					Costs					Net Benefit
	Gen	T&D	Fuel	Other	Total	Utility	Incentives	Lost Revenues	Other	Total	
[Residential]											
Residential Subtotal											
[Comm/Industrial]											
Comm/Ind. Subtotal											
Total											

Response:

Please see the attached DR1-Q6 Excel file.

Program Name	Benefits					Costs					Net Benefit
	Gen	T&D	Fuel	Other	Total	Utility	Incentives	Lost Revenues	Other	Total	
RIP	\$ 40,539	\$ 9,591	\$ 52,025	\$ -	\$ 102,155	\$ 12,697	\$ 17,588	\$ 64,985	\$ -	\$ 95,270	\$ 6,885
NES	\$ 40,303	\$ 8,868	\$ 58,360	\$ -	\$ 107,531	\$ 8,506	\$ 19,993	\$ 77,909	\$ -	\$ 106,408	\$ 1,123
LIWAP	\$ 5,801	\$ 1,253	\$ 7,994	\$ -	\$ 15,049	\$ 1,249	\$ 3,017	\$ 10,372	\$ -	\$ 14,638	\$ 410
REM	\$ 155,145	\$ -	\$ 56,923	\$ -	\$ 212,068	\$ 25,503	\$ 49,487	\$ 1,962	\$ -	\$ 76,952	\$ 135,116
Residential Subtotal	\$ 241,788	\$ 19,712	\$ 175,302	\$ -	\$ 436,802	\$ 47,955	\$ 90,086	\$ 155,227	\$ -	\$ 293,268	\$ 143,534
Better Business	\$ 24,694	\$ 4,884	\$ 51,113	\$ -	\$ 80,691	\$ 8,975	\$ 4,732	\$ 64,096	\$ -	\$ 77,803	\$ 2,888
Stand-by Gen	\$ 42,037	\$ -	\$ 22,349	\$ -	\$ 64,386	\$ 19,782	\$ 21,116	\$ 2,899	\$ -	\$ 43,797	\$ 20,589
IS	\$ 3,234	\$ -	\$ 1,592	\$ -	\$ 4,826	\$ 237	\$ 1,525	\$ 111	\$ -	\$ 1,873	\$ 2,953
CS	\$ 759	\$ -	\$ 377	\$ -	\$ 1,136	\$ 17	\$ 268	\$ 28	\$ -	\$ 313	\$ 823
Comm/Ind. Subtotal	\$ 70,724	\$ 4,884	\$ 75,431	\$ -	\$ 151,038	\$ 29,010	\$ 27,641	\$ 67,134	\$ -	\$ 123,785	\$ 27,253
Total	\$ 312,511	\$ 24,596	\$ 250,733	\$ -	\$ 587,840	\$ 76,965	\$ 117,727	\$ 222,361	\$ -	\$ 417,053	\$ 170,787

7. Please provide for each program with demand and energy savings the net present value of the benefits and costs described in the Total Resource Cost Test and detailed in the table below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Name	Benefits					Costs				Net Benefit
	Gen	T&D	Fuel	Other	Total	Utility	Participant	Other	Total	
[Residential]										
Residential Subtotal										
[Comm/Industrial]										
Comm/Ind. Subtotal										
Total										

Response:

Please see the attached DR1-Q7 Excel file.

Program Name	Benefits					Costs				Net Benefit
	Gen	T&D	Fuel	Other	Total	Utility	Participant	Other	Total	
RIP	\$ 40,539	\$ 9,591	\$ 52,025	\$ -	\$ 102,155	\$ 12,697	\$ 39,421	\$ -	\$ 52,118	\$ 50,037
NES	\$ 40,303	\$ 8,868	\$ 58,360	\$ -	\$ 107,531	\$ 8,506	\$ 19,993	\$ -	\$ 28,499	\$ 79,032
LIWAP	\$ 5,801	\$ 1,253	\$ 7,994	\$ -	\$ 15,049	\$ 1,249	\$ 6,608	\$ -	\$ 7,858	\$ 7,191
REM	\$ 155,145	\$ -	\$ 56,923	\$ -	\$ 212,068	\$ 25,503	\$ -	\$ -	\$ 25,503	\$ 186,565
Residential Subtotal	\$ 241,788	\$ 19,712	\$ 175,302	\$ -	\$ 436,802	\$ 47,955	\$ 66,023	\$ -	\$ 113,978	\$ 322,825
Better Business	\$ 24,694	\$ 4,884	\$ 51,113	\$ -	\$ 80,691	\$ 8,975	\$ 19,100	\$ -	\$ 28,075	\$ 52,616
Stand-by Gen	\$ 42,037	\$ -	\$ 22,349	\$ -	\$ 64,386	\$ 19,782	\$ -	\$ -	\$ 19,782	\$ 44,604
IS	\$ 3,234	\$ -	\$ 1,592	\$ -	\$ 4,826	\$ 237	\$ -	\$ -	\$ 237	\$ 4,589
CS	\$ 759	\$ -	\$ 377	\$ -	\$ 1,136	\$ 17	\$ -	\$ -	\$ 17	\$ 1,119
Comm/Ind. Subtotal	\$ 70,724	\$ 4,884	\$ 75,431	\$ -	\$ 151,038	\$ 29,010	\$ 19,100	\$ -	\$ 48,110	\$ 102,928
Total	\$ 312,511	\$ 24,596	\$ 250,733	\$ -	\$ 587,840	\$ 76,965	\$ 85,123	\$ -	\$ 162,088	\$ 425,752

8. Please provide for each program with demand and energy savings the net present value of the benefits and costs described in the Participants Test and detailed in the table below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Program Name	Benefits					Costs				Net Benefit
	Bill Savings	Tax Credits	Incentive	Other	Total	Equipment	O&M	Other	Total	
[Residential]										
Residential Subtotal										
[Comm/Industrial]										
Comm/Ind. Subtotal										
Total										

Response:

Please see the attached DR1-Q8 Excel file

Program Name	Benefits					Costs				Net Benefit
	Bill Savings	Tax Credits	Incentive	Other	Total	Equipment	O&M	Other	Total	
RIP	\$ 64,985	\$ -	\$ 17,588	\$ -	\$ 82,573	\$ 39,421	\$ -	\$ -	\$ 39,421	\$ 43,152
NES	\$ 77,909	\$ -	\$ 19,993	\$ -	\$ 97,902	\$ 19,993	\$ -	\$ -	\$ 19,993	\$ 77,909
LIWAP	\$ 10,372	\$ -	\$ 3,017	\$ -	\$ 13,389	\$ 6,608	\$ -	\$ -	\$ 6,608	\$ 6,780
REM	\$ 1,962	\$ -	\$ 49,487	\$ -	\$ 51,449	\$ -	\$ -	\$ -	\$ -	\$ 51,449
Residential Subtotal	\$ 155,227	\$ -	\$ 90,086	\$ -	\$ 245,313	\$ 66,023	\$ -	\$ -	\$ 66,023	\$ 179,290
Better Business	\$ 64,096	\$ -	\$ 4,732	\$ -	\$ 68,828	\$ 19,100	\$ -	\$ -	\$ 19,100	\$ 49,728
Stand by Gen	\$ 2,899	\$ -	\$ 21,116	\$ -	\$ 24,015	\$ -	\$ -	\$ -	\$ -	\$ 24,015
IS	\$ 111	\$ -	\$ 1,525	\$ -	\$ 1,636	\$ -	\$ -	\$ -	\$ -	\$ 1,636
CS	\$ 28	\$ -	\$ 268	\$ -	\$ 296	\$ -	\$ -	\$ -	\$ -	\$ 296
Comm/Ind. Subtotal	\$ 67,134	\$ -	\$ 27,641	\$ -	\$ 94,775	\$ 19,100	\$ -	\$ -	\$ 19,100	\$ 75,675
Total	\$ 222,361	\$ -	\$ 117,727	\$ -	\$ 340,088	\$ 85,123	\$ -	\$ -	\$ 85,123	\$ 254,965

9. Please provide the actual and projected Energy Conservation Cost Recovery (ECCR) annual funds in nominal dollars for the period 2010 through 2024. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Year	ECCR Expenditures
2010	
2011	
2012	
2013	
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	

Response:

Please see the attached DR1-Q9 Excel file.

Year	ECCR Expenditures (\$MM)
2010	\$ 85
2011	\$ 92
2012	\$ 94
2013	\$ 115
2014	\$ 107
2015	\$ 114
2016	\$ 110
2017	\$ 110
2018	\$ 108
2019	\$ 89
2020	\$ 83
2021	\$ 81
2022	\$ 79
2023	\$ 80
2024	\$ 80

(2015-2024 Projections)

10. Please provide the actual and projected monthly customer bill associated with the ECCR Clause for a residential and commercial/industrial customer with the usage described in the table below, in nominal dollars. Please also provide the actual and projected total monthly customer bill. As part of this response, please provide an electronic version of the table below in Excel format with your response.

Year	Residential Customer 1,200 kWh/mo		Commercial/Industrial Customer 400,000 kWh/mo & 1,000 kW Peak	
	ECCR Portion (\$)	Total Bill (\$)	ECCR Portion (\$)	Total Bill (\$)
2010				
2011				
2012				
2013				
2014				
2015				

2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				

Response:

Please see the attached DR1-Q10 Excel file.

Year	Residential Customer 1,200 kWh/mo		Industrial Customer (GSD-1) 400,000 kWh/mo & 1,000 kW Peak	
	ECCR Portion (\$)	Total Bill (\$)	ECCR Portion (\$)	Total Bill (\$)
2010	\$ 3.24	\$ 155.28	\$ 840	\$ 33,201
2011	\$ 3.59	\$ 145.70	\$ 900	\$ 30,188
2012	\$ 3.46	\$ 150.32	\$ 840	\$ 39,168
2013	\$ 3.67	\$ 142.06	\$ 900	\$ 35,482
2014	\$ 4.82	\$ 153.40	\$ 1,180	\$ 38,371
2015	\$ 4.23	\$ 151.68	\$ 1,058	\$ 37,941
2016	\$ 4.08	\$ 150.18	\$ 1,021	\$ 37,566
2017	\$ 3.99	\$ 159.26	\$ 998	\$ 39,836
2018	\$ 3.88	\$ 164.30	\$ 971	\$ 41,097
2019	\$ 3.15	\$ 175.25	\$ 788	\$ 43,836
2020	\$ 2.88	\$ 177.40	\$ 720	\$ 44,375
2021	\$ 2.80	\$ 182.52	\$ 700	\$ 45,655
2022	\$ 2.70	\$ 186.24	\$ 675	\$ 46,587
2023	\$ 2.67	\$ 187.68	\$ 668	\$ 46,945
2024	\$ 2.66	\$ 187.18	\$ 665	\$ 46,821
(2015-2024 Projections)				

- Please explain and discuss the differences between the energy goals and projected or requisite impacts of those goals to customer bills in the current goal-setting cycle and those of the previous one. Specifically, please explain the reasons that, in the FPSC's 2015 FEECA report, the stated energy savings goal is 195 GWh with a \$2.70 cost on a

1,200 kWh bill; whereas the proposed DSM Plan has a stated energy savings goal of 21 GWh with a \$4.23 cost on the same customer bill.

Response:

DEF believes that Staff intends to ask about the difference between the 2015 rate impact or the programs that are currently in place as compared to the 2015 rate impact presented in DEF's DSM Plan. To make a meaningful comparison it is important to ensure that the two figures being compared are sufficiently similar or "apples to apples." The figures included in this question are not "apples to apples."

First, the question states that \$2.70 is the bill impact on a 1200 kwh bill when it is actually the 2015 residential bill impact on a 1000 kwh bill. The \$2.70 would need to be adjusted to \$3.42 to correspond with a 1200 kwh bill.

Another distinction is that the 2015 residential bill impact of \$3.42 includes a \$23.8M over-recovery from the previous year, but that same over-recovery is not included in the 2015 rate included in the DSM plan. For comparison purposes, if this over-recovery were excluded, the \$3.42 bill impact for a 1200 kwh residential bill in 2015 would increase to \$4.10.

Making these changes means that the \$4.10 1200 kwh residential bill impact is comparable to the 2015 bill impact of \$4.23 reflected in the Program Plan filing.

12. For DEF's Home Energy Check and Business Energy Check programs, please provide a list of measures used to determine energy and demand savings. Please identify each measure and specify whether it is equipment provided by the company and installed by the auditor, equipment provided but installed by the home or business owner, or a behavioral measure savings. Also, please explain the circumstances or conditions which determine whether a customer will or will not receive the kits referenced in the program descriptions. As part of this response, please complete the table below for each measure.

[Measure Name]						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						

Response:

Customers participating in the on-site Home Energy Check will receive an energy efficiency kit. The Company may also elect to offer and ship kits to customers who participate in the online and phone-assisted audits. The kit will contain items that can be easily installed by the customer including light bulbs, low-flow showerheads, faucet aerators, weather stripping, hot water gauges, digital refrigerator thermometers, and switch/outlet gaskets. For on-site Home Energy Checks, the auditor will install some items in the kit and the others will be installed by the customer. For kits provided in online and phone-assisted audits, the items will be installed by the customer. DEF may elect to change the contents of the kit or may elect not to provide kits for certain audit types in the future. This flexibility will allow DEF to manage the program to balance savings impacts and program costs.

Customers participating in the Business Energy Check program will also receive a kit. The auditor may install some of the items in the kit and the business owner will install others. The Business Energy kit will contain energy efficient security lights and a power strip. The items provided in the kit may also change over time.

Please see the attached DR1-Q12 Excel file.

Home Energy Check - Kit Only						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	604	0.20	0.14	19,892,228	6,656	4,657
2016	604	0.20	0.14	19,173,284	6,416	4,489
2017	604	0.20	0.14	17,875,783	5,982	4,185
2018	604	0.20	0.14	9,090,346	3,042	2,128
2019	604	0.20	0.14	9,090,346	3,042	2,128
2020	604	0.20	0.14	9,090,346	3,042	2,128
2021	604	0.20	0.14	9,090,346	3,042	2,128
2022	604	0.20	0.14	9,090,346	3,042	2,128
2023	604	0.20	0.14	9,090,346	3,042	2,128
2024	604	0.20	0.14	9,090,346	3,042	2,128

Home Energy Check - Walk Thru Audit Only (No Kit)						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	234	0.11	0.11	3,520,599	1,600	1,600
2016	234	0.11	0.11	3,520,599	1,600	1,600
2017	234	0.11	0.11	3,520,599	1,600	1,600
2018	234	0.11	0.11	3,520,599	1,600	1,600
2019	234	0.11	0.11	3,520,599	1,600	1,600
2020	234	0.11	0.11	3,520,599	1,600	1,600
2021	234	0.11	0.11	3,520,599	1,600	1,600
2022	234	0.11	0.11	3,520,599	1,600	1,600
2023	234	0.11	0.11	3,520,599	1,600	1,600
2024	234	0.11	0.11	3,520,599	1,600	1,600

Home Energy Check - Walk Thru, Multi Family Audit Only (No Kit)						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	k Wh Reduction	Winter kW Reduction	Summer kW Reduction	k Wh Reduction	Winter kW Reduction	Summer kW Reduction
2015	129	0.04	0.05	356,230	118	147
2016	129	0.04	0.05	356,230	118	147
2017	129	0.04	0.05	356,230	118	147
2018	129	0.04	0.05	356,230	118	147
2019	129	0.04	0.05	356,230	118	147
2020	129	0.04	0.05	356,230	118	147
2021	129	0.04	0.05	356,230	118	147
2022	129	0.04	0.05	356,230	118	147
2023	129	0.04	0.05	356,230	118	147
2024	129	0.04	0.05	356,230	118	147

Home Energy Check - Internet Audit Only (No Kit)						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	k Wh Reduction	Winter kW Reduction	Summer kW Reduction	k Wh Reduction	Winter kW Reduction	Summer kW Reduction
2015	88	0.03	0.03	762,415	230	230
2016	88	0.03	0.03	711,671	214	214
2017	88	0.03	0.03	620,091	187	187
2018	88	0.03	0.03	504,314	152	152
2019	88	0.03	0.03	382,836	115	115
2020	88	0.03	0.03	271,288	82	82
2021	88	0.03	0.03	179,473	54	54
2022	88	0.03	0.03	110,839	33	33
2023	88	0.03	0.03	63,892	19	19
2024	88	0.03	0.03	34,378	10	10

Home Energy Check - Phone Audit Only (No Kit)						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	88	0.03	0.03	815,890	246	246
2016	88	0.03	0.03	761,587	229	229
2017	88	0.03	0.03	663,583	200	200
2018	88	0.03	0.03	539,686	163	163
2019	88	0.03	0.03	409,688	123	123
2020	88	0.03	0.03	290,316	87	87
2021	88	0.03	0.03	192,061	58	58
2022	88	0.03	0.03	118,613	36	36
2023	88	0.03	0.03	68,373	21	21
2024	88	0.03	0.03	36,790	11	11

Business Energy Check - Kit Only						
Year	Audit Measure Savings (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	1067	0.16	0.20	889,513	133	165
2016	1067	0.16	0.20	1,971,940	295	365
2017	1067	0.16	0.20	1,793,495	268	332
2018	1067	0.16	0.20	1,579,319	236	293
2019	1067	0.16	0.20	1,404,007	210	260
2020	1067	0.16	0.20	1,110,818	166	206
2021	1067	0.16	0.20	733,269	110	136
2022	1067	0.16	0.20	448,553	67	83
2023	1067	0.16	0.20	266,866	40	49
2024	1067	0.16	0.20	167,027	25	31

13. For the Home Energy Check program, please explain in detail how the projected energy reduction of 668 kWh per year per participant was developed. If the Home Energy Check and Business Energy Check programs include savings achieved through behavioral modifications, please describe the empirical basis for asserting such savings

(i.e. double blind experiments, transfer of findings from other utilities, engineering guesses) and how they are monitored and verified.

Response:

The Home Energy Check (HEC) program includes multiple audit types with different savings assumptions. The savings are a combination of the savings that result from the education and engagement with customers about the specific energy saving opportunities that exist in their specific residence and the savings that result from the installation of physical measures that participating customers receive in an energy efficiency kit.

As a result, while the 2015 per-participant savings of 668 kWh's was developed by dividing total program kWh savings by the projected number of audit participants, the calculation of total kWh savings involves several variables. The attached DR 1-Q13 Excel spreadsheet presents all of the necessary data and formulas used to calculate the 668 kWh-per-participant for the year 2015.

The behavioral savings DEF is attributing to the residential audit information component of the program are based on a statistical analyses of usage data for an Audit Group of customers that participated in the HEC program during the year that did not have subsequent measure implementations. The billing data from the Audit Group was compared by statistical analysis with normalized data for the year prior to the audit and the 12-months following the audit. A Control Group consisting of customers that did not participate in the HEC program was also selected to compare any observed changes. Before and after results were determined by subtracting the Control Group change for the same period (e.g., what happened due to weather and other factors outside of the HEC audit) from the billing change that was observed in the Audit Group.

The Business Energy Check program only claimed savings associated with the energy efficiency kit that will be provided to customers.

14. Please state the projected residential and commercial GWh annual energy savings without the projected behavioral savings from the Home Energy Check and Business Energy Check Programs. Will the resulting savings meet the FPSC goals?

Response:

As stated in response to Q13, the Business Energy Check Program does not claim behavioral savings. The projected Residential annual GWh savings without inclusion of behavioral savings exceeds the Commission goal for each year of the planning period as shown in the table below.

gWh											
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Residential Incentive	10.2	8.9	7.7	6.3	4.8	3.4	2.2	1.4	0.8	0.4	46.1
Home Energy Check	18.7	18.0	16.8	8.6	8.6	8.6	8.6	8.6	8.6	8.6	113.4
Low Income Weatherization	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	9.3
Neighborhood Energy Saver	10.2	10.2	10.2	10.2	10.2	7.8	7.8	7.8	7.8	7.8	89.8
Renewable	1.9										
Energy Wise	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	42.0	38.0	35.7	26.0	24.5	20.6	19.5	18.6	18.0	17.7	258.6
Goal	24.0	22.4	19.6	16.0	12.2	8.7	5.8	3.6	2.1	1.1	115.5
GWh above goal	18.0	15.6	16.1	10.0	12.2	11.9	13.6	15.0	16.0	16.5	145.0

15. DEF's proposed Home Energy Check includes online audits. In contrast, DEF's proposed Business Energy Check includes no online audits due to the lack of participation by commercial and industrial customers.

a. How has DEF promoted Business Energy Check online audits for commercial and industrial customers?

Response:

The Business Energy Check on-line audit is available to all commercial and industrial customers on the Duke Energy external company website.

b. When it became clear that commercial and industrial customers were participating in online audits at low rates, what additional advertising methods did DEF explore in order to increase participation?

Response:

DEF did not explore additional advertising methods to increase participation. The fact that energy use in commercial and industrial operations can vary greatly from customer to customer makes it difficult to provide a meaningful experience to commercial and industrial customers through an on-line audit tool, which DEF

believes led to the low participation rates. DEF believes there is more benefit to commercial and industrial customers from on-site assessments. The onsite assessments provide important opportunities to educate and engage customers about energy efficiency measures applicable to their specific business operation. The Company assessors can thoroughly evaluate the structural and operational components of the business to determine the most cost effective measures that the customer can implement to reduce energy usage.

DEF also plans to offer a phone assisted audit. Although the phone-assisted audit will not provide the same level of opportunity for a thorough and accurate analysis of energy usage in the customer's operation as an on-site evaluation, it will provide another avenue that will allow the auditor to educate and engage the customer about energy savings measures specific to their operation.

16. Please discuss and explain fully the rationale for including energy savings from the Home and Business Energy Check programs in the current DSM Plan when no such savings were included in the previously approved Plan. Also, please explain the rationale for and reasonability of projecting that more than half of the Residential energy savings will come from the Home Energy Check Program.

Response:

The rationale for including energy savings from Home and Business Energy check programs in the DSM plan is that these programs deliver real and meaningful energy savings to Duke Energy Florida customers. In addition to serving as the foundation for customer participation in the Company's DSM incentive programs, these programs provide important opportunities to educate and engage customers about the specific energy efficiency opportunities that exist in their specific residence or place of business. The energy savings recognized are not only generated from the education and engagement that occurs, but also through the installation of physical measures that occurs as a result of customers participating in the Home Energy Check receiving an Energy Efficiency Kit. The kits will contain energy saving measures that can easily be installed and utilized by the customer.

The customer education and engagement component of these Energy Check Programs is critical to ensuring that customers maximize the savings benefit from energy efficiency measures because without proper education customers may not fully achieve the energy savings the measure is intended to deliver. During the audit, Company representatives meet with customers to do an extensive analysis of the physical structure and components of the customer's residence or business and then advise the customer of specific energy conservation measures and practices that the customer can implement. These audits provide opportunities for DEF to encourage customer participation in other DSM programs that the customer may be eligible for.

In regard to the inclusion of the savings related to the Home and Business Energy Check programs in the DSM Plan, DEF notes that there is Commission precedent for inclusion of savings from these programs. In the 2010 DSM Plan, the Commission stated that DEF's 2010 Plan should consist of the programs that were in effect at that time (Order PSC-11-0347-PAA-EG). The programs that were in effect at that time were actually approved in the 2004 goal setting process and the order that approved the 2004 DSM Plan included savings from the Home and Business Energy Check programs (PSC-04-0769-PAA-EG.) Similarly, the 1999 DSM Plan that was approved by the Commission also included the savings impacts from these programs (Order PSC-00-0750-PAA-EG).

It is reasonable that a significant portion of the residential energy savings in the Plan is projected to come from the Home Energy Check program because DEF plans to continue to promote the audits over the plan period despite the decline in the annual GWh goal. DEF will continue to inform customers about the audit as required by Rule 25.17003(11)(a) which requires each utility to send a program announcement to eligible customers at least every six months. Additionally, utilizing the audits as a mechanism to educate customers about the benefits of energy efficiency opportunities aligns with the Commission's directive in the goals docket that the utilities should continue to educate customers with specific focus on outreach and educating customers to empower them to take advantage of measures with a two-year payback or less.

17. No cost-effectiveness analyses of the Home Energy Check and Business Energy Check Programs were provided. Please provide the RIM, Participant, and TRC analyses for these two audit-type programs.

Response:

Please see the attached DR1-Q17 Excel files: DEF Business Energy Check Cost Effectiveness and DEF Home Energy Check Cost Effectiveness.

18. Do any of the programs in the company's DSM Plan include savings associated with Compact Fluorescent Lightbulbs? If so, what baseline used?

Response:

Yes, DEF included savings associated with Compact Fluorescent Lightbulbs as well as LEDs. The baselines for savings were the EISA 2007 minimums for general service incandescent lamps:

Rated Lumen Ranges	Incandescent Baseline	EISA Baseline	Effective Date
1490-2600	100	72	1/1/2012
1050-1489	75	53	1/1/2013
750-1049	60	43	1/1/2014

19. Please identify each program in the company's DSM Plan that includes measures with an estimated 2 year or less payback period, and specify the measures included in each program.

Response:

Low Income Weatherization Assistance Program – 6 measures
-Water Heater Blanket
-Low Flow Showerhead
-9W LED

- Faucet Aerator
- CFL
- Infiltration Reduction

Neighborhood Energy Saver – 14 measures

- 9W LED
- Refrigerator Thermometer
- Switch Plate Wall Thermometer
- Door Sweep
- A/C Heat Filter
- MyHER Report
- Low Flow Showerhead
- Faucet Aerator
- Pipe Wrap
- Water Heater Blanket
- Door Weather-stripping
- CFL 13W
- CFL 20W
- CFL 23W

Home Energy Check – 1 measure

- Kit

Business Energy Check – 1 measure

- Kit

20. For each program that includes measures with an estimated 2 year or less payback period, please provide the amount of savings (kWh, Win kW, and Sum kW) associated with these measures for each program and for the entire DSM Plan. As part of this response, please provide an electronic version of the table below in Excel format with your response.

[Program Name or DSM Plan Combined]						
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015						
2016						
2017						
2018						
2019						

2020						
2021						
2022						
2023						
2024						

Response:

Please see the attached DR1-Q20 Excel file.

Low Income Weatherization Assistance Program						
Total Program						
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	104.32	0.02	0.02	508,572	169	97
2016	104.32	0.02	0.02	508,572	169	97
2017	104.32	0.02	0.02	508,572	169	97
2018	102.29	0.02	0.02	519,127	172	102
2019	102.29	0.02	0.02	519,127	172	102
2020	102.29	0.02	0.02	519,127	172	102
2021	102.29	0.02	0.02	519,127	172	102
2022	102.29	0.02	0.02	519,127	172	102
2023	102.29	0.02	0.02	519,127	172	102
2024	102.29	0.02	0.02	519,127	172	102

Home Energy Check	
Total Program	
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)

	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	603.93	0.20	0.14	19,892,228	6,656	4,657
2016	603.93	0.20	0.14	19,173,284	6,416	4,489
2017	603.93	0.20	0.14	17,875,783	5,982	4,185
2018	603.93	0.20	0.14	9,090,346	3,042	2,128
2019	603.93	0.20	0.14	9,090,346	3,042	2,128
2020	603.93	0.20	0.14	9,090,346	3,042	2,128
2021	603.93	0.20	0.14	9,090,346	3,042	2,128
2022	603.93	0.20	0.14	9,090,346	3,042	2,128
2023	603.93	0.20	0.14	9,090,346	3,042	2,128
2024	603.93	0.20	0.14	9,090,346	3,042	2,128

Total Impacts <2yr payback						
Total Plan						
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	254.65	0.08	0.06	28,993,969	9,632	7,352
2016	258.24	0.08	0.06	29,357,453	9,553	7,384
2017	250.36	0.08	0.06	27,881,505	9,092	7,047
2018	195.13	0.06	0.05	18,892,448	6,124	4,955
2019	193.65	0.06	0.05	18,717,136	6,097	4,922
2020	194.32	0.06	0.05	15,813,670	5,352	4,214

2021	190.51	0.06	0.05	15,436,121	5,295	4,144
2022	187.61	0.06	0.05	15,151,405	5,253	4,091
2023	185.75	0.06	0.05	14,969,719	5,226	4,058
2024	184.73	0.06	0.05	14,869,879	5,211	4,039

Business Energy Check						
Total Program						
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)					
	Per Customer			Total Annual		
	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	1067.42	0.16	0.20	889,513	133	165
2016	1067.42	0.16	0.20	1,971,940	295	365
2017	1067.42	0.16	0.20	1,793,495	268	332
2018	1067.42	0.16	0.20	1,579,319	236	293
2019	1067.42	0.16	0.20	1,404,007	210	260
2020	1067.42	0.16	0.20	1,110,818	166	206
2021	1067.42	0.16	0.20	733,269	110	136
2022	1067.42	0.16	0.20	448,553	67	83
2023	1067.42	0.16	0.20	266,866	40	49
2024	1067.42	0.16	0.20	167,027	25	31

Neighborhood Energy Saver		
Total Program		
Year	Program Savings from 2-Year Payback Measures (Savings @ Generator)	
	Per Customer	Total Annual

	kWh Reduction	Winter kW Reduction	Summer kW Reduction	kWh Reduction	Winter kW Reduction	Summer kW Reduction
2015	102.43	0.04	0.03	7,703,656	2,674	2,432
2016	102.43	0.04	0.03	7,703,656	2,674	2,432
2017	102.43	0.04	0.03	7,703,656	2,674	2,432
2018	102.43	0.04	0.03	7,703,656	2,674	2,432
2019	102.43	0.04	0.03	7,703,656	2,674	2,432
2020	84.59	0.03	0.03	5,093,379	1,972	1,778
2021	84.59	0.03	0.03	5,093,379	1,972	1,778
2022	84.59	0.03	0.03	5,093,379	1,972	1,778
2023	84.59	0.03	0.03	5,093,379	1,972	1,778
2024	84.59	0.03	0.03	5,093,379	1,972	1,778

21. Please describe the avoided unit used in the company's cost-effectiveness evaluations of the programs in its DSM Plan. Is this avoided unit the same one that was used in the goalsetting docket? If not, please explain why and the differences in avoided costs resulting from the change.

Response:

The avoided units used in DEF's DSM plan are the same as those used in the DSM Goals Docket.

AGT P2 Brown field- SIMPLE CYCLE COMBUSTION TURBINE		unit 1
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2018
(3) Winter Capacity	MW	214
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	\$/KW	493.10
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	\$/kw-year	63.35
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.1105
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		1% winter 5% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	6.09
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P1 - COMBINED CYCLE		unit 2
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2021
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	\$/KW	1,145.43
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	\$/kw-year	66.82
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.6298
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	4.72
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

CC2X1 P2 - COMBINED CYCLE		unit 3
(1) Base Year		2013
(2) In Service Year for Avoided Generation Unit		1-Jun-2024
(3) Winter Capacity	MW	865.8
(4) Base Year Avoided Generating Unit Cost (including transmission upgrade cost)	\$/KW	749.45
(5) Generator Cost Escalation Rate		2.50%
(6) Generator Fixed O&M Cost (including non-escalating gas pipeline reservation cost)	\$/kw-year	62.85
(7) Generator Fixed O&M Cost Escalation Rate		2.50%
(8) Avoided Gen Unit Variable O&M Cost	¢/Kwh	0.6782
(9) Generator Variable O&M Cost Escalation Rate		2.50%
(10) Generator Capacity Factor		28% winter 45% summer
(11) Avoided Generating Unit Fuel Cost	¢/Kwh	5.21
(12) Avoided Generating Unit Fuel Escalation Rate		3.00%

22. Please discuss whether any measure's demand and energy savings used in the company's cost-effectiveness evaluations of the programs in its DSM Plan differed from the one

2023								
2024								

Response:

Please see the attached DR1-Q23 Excel file.

Year	Savings by Measure Type							
	1000 kWh		1 kW Summer		1 kW Winter		1 kW Sum & Win	
	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
2015	\$49	\$49	\$18	\$18	\$4	\$4	\$22	\$22
2016	\$48	\$47	\$18	\$18	\$4	\$4	\$22	\$21
2017	\$53	\$50	\$18	\$17	\$4	\$4	\$22	\$21
2018	\$53	\$50	\$128	\$119	\$4	\$4	\$132	\$123
2019	\$52	\$47	\$172	\$156	\$4	\$4	\$176	\$159
2020	\$57	\$50	\$170	\$150	\$4	\$4	\$174	\$154
2021	\$56	\$48	\$224	\$193	\$4	\$3	\$228	\$197
2022	\$57	\$48	\$264	\$222	\$4	\$3	\$268	\$225
2023	\$62	\$51	\$267	\$219	\$4	\$3	\$271	\$222
2024	\$71	\$56	\$177	\$142	\$4	\$3	\$181	\$145
2025	\$65	\$51	\$215	\$168	\$4	\$3	\$219	\$171
2026	\$65	\$49	\$145	\$111	\$4	\$3	\$149	\$114
2027	\$69	\$51	\$253	\$188	\$4	\$3	\$257	\$191
2028	\$69	\$50	\$152	\$110	\$4	\$3	\$156	\$113
2029	\$69	\$49	\$193	\$137	\$4	\$3	\$197	\$139
2030	\$71	\$49	\$209	\$144	\$4	\$3	\$213	\$147
2031	\$79	\$53	\$250	\$168	\$4	\$3	\$254	\$171
2032	\$82	\$54	\$255	\$168	\$4	\$3	\$259	\$170
2033	\$85	\$54	\$259	\$166	\$4	\$3	\$263	\$169
2034	\$87	\$55	\$262	\$164	\$4	\$3	\$266	\$166
2035	\$89	\$55	\$267	\$163	\$4	\$2	\$271	\$165
2036	\$89	\$53	\$183	\$109	\$4	\$2	\$187	\$111
2037	\$89	\$52	\$208	\$121	\$4	\$2	\$212	\$123
2038	\$95	\$54	\$147	\$83	\$4	\$2	\$151	\$86
2039	\$97	\$54	\$153	\$85	\$4	\$2	\$157	\$87
2040	\$98	\$53	\$193	\$104	\$4	\$2	\$197	\$106
2041	\$103	\$54	\$283	\$149	\$4	\$2	\$287	\$151
2042	\$111	\$57	\$333	\$171	\$4	\$2	\$337	\$173

24. For each demand response program, use the table below to provide the information listed on an annual basis for customer participation. Please also provide a summary of all demand response programs using the chart below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

[All Demand Response Programs Combined or By Demand Response Program Name]									
Year	Average Number of Participants	Available Capacity (MW)		New Participants	Added Capacity (MW)		Participants Lost	Lost Capacity (MW)	
		Sum	Win		Sum	Win		Sum	Win
2005									
2006									
2007									
2008									
2009									
2010									
2011									
2012									
2013									
2014									

Response:

Please see the attached Excel file which has Tabs for questions DR1-Q24, Q25, and Q26.

All Sources of Demand Response Combined									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	406,381	809	1,380	4,357	10	15	12,076	DNA	DNA
2006	396,093	684	1,087	5,624	10	16	18,498	DNA	DNA
2007	390,304	680	1,000	10,247	27	42	8,982	DNA	DNA
2008	391,591	859	1,031	10,187	46	56	8,938	DNA	DNA
2009	392,817	645	1,098	8,044	35	42	6,779	DNA	DNA
2010	395,646	679	977	8,384	24	31	3,946	DNA	DNA
2011	400,212	647	1,026	7,874	15	23	3,206	DNA	DNA
2012	404,283	696	920	5,582	11	16	1,953	DNA	DNA
2013	407,939	681	1,035	4,337	16	20	838	DNA	DNA
2014	410,274	724	1,014	3,156	23	27	1,977	DNA	DNA

Residential Load Management									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	405,796	310	779	4,348	4	9	12,038	3.4	23.3
2006	395,520	307	762	5,611	5	12	18,473	4.4	36.2
2007	389,713	291	671	10,218	7	22	8,970	7.6	15.4
2008	390,924	284	763	10,099	12	22	8,925	7.3	17.4
2009	392,137	291	759	8,009	10	17	6,757	5.9	13.1
2010	394,999	304	651	8,357	11	18	3,886	6.4	6.4
2011	399,582	317	661	7,858	9	17	3,163	6.2	5.2
2012	403,833	326	639	5,570	6	12	1,762	4.5	2.8
2013	407,482	341	652	4,321	5	9	831	1.0	3.8
2014	409,812	355	654	3,145	3	7	1,976	2.2	4.1

Commercial LM									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	355	12	0	0	0	0	33	1	0
2006	332	11	0	0	0	0	23	1	0
2007	325	10	0	0	0	0	7	1	0
2008	316	9	0	0	0	0	9	1	0
2009	316	8	0	0	0	0	0	1	0
2010	262	8	0	0	0	0	54	0	0
2011	250	6	0	0	0	0	12	2	0
2012	65	4	0	0	0	0	185	2	0
2013	65	4	0	0	0	0	0	0	0
2014	65	4	0	0	0	0	0	0	0

Standby Generation									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	71	38	26	5	1.4	1.4	3	DNA	DNA
2006	83	37	26	13	4.3	4.3	1	DNA	DNA
2007	111	45	26	27	14.7	14.7	0	DNA	DNA
2008	196	66	34	88	33.9	33.9	3	DNA	DNA
2009	212	84	71	32	8.4	8.4	16	DNA	DNA
2010	237	96	80	27	13.6	13.6	2	DNA	DNA
2011	234	97	94	16	5.8	5.8	19	DNA	DNA
2012	247	100	96	11	4.0	4.0	0	DNA	DNA
2013	253	98	98	12	4.7	4.7	4	DNA	DNA
2014	259	103	104	10	5.0	5.0	1	DNA	DNA

Interruptible Service									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	151	399	536	4	4.0	4.0	2	DNA	DNA
2006	150	306	267	0	0.0	0.0	1	DNA	DNA
2007	148	314	276	2	5.1	5.1	4	DNA	DNA
2008	147	477	213	0	0.0	0.0	1	DNA	DNA
2009	146	245	255	3	16.5	16.5	4	DNA	DNA
2010	143	254	233	0	0.0	0.0	3	DNA	DNA
2011	142	221	264	0	0.0	0.0	11	DNA	DNA
2012	134	262	179	1	0.6	0.6	6	DNA	DNA
2013	135	233	278	4	6.6	6.6	3	DNA	DNA
2014	134	256	249	1	15.0	15.0	0	DNA	DNA

Curtable Service									
Year	Average Number of Participants	Available Capacity (MW) (1)		New Participants	Added Capacity (MW) (2)		Participants Lost	Lost Capacity (MW) (3)	
		Sum	Win		Sum	Win		Sum	Win
2005	8	49	39	0	0	0	0	DNA	DNA
2006	8	23	31	0	0	0	0	DNA	DNA
2007	7	20	28	0	0	0	1	DNA	DNA
2008	8	23	21	0	0	0	0	DNA	DNA
2009	6	17	13	0	0	0	2	DNA	DNA
2010	5	17	13	0	0	0	1	DNA	DNA
2011	4	6	7	0	0	0	1	DNA	DNA
2012	4	5	7	0	0	0	0	DNA	DNA
2013	4	5	7	0	0	0	0	DNA	DNA
2014	4	6	7	0	0	0	0	DNA	DNA

Table Footnotes:

- (1) Total available capacity may change as a result of multiple factors including changes in participation, changes in contribution from existing participants, and periodic evaluation of system response. Thus, changes in total available capacity do not directly correlate to changes in participation.
- (2) Added capacity corresponds to the addition of new participants only.
- (3) Data is Not Available (DNA) on lost capacity for certain source programs and therefore is listed as DNA in their specific table and for the aggregated ALL Source Table.

25. For each demand response program, use the table below to provide the information listed on an annual basis in seasonal peak demand and number of participants. Please also provide a summary of all demand response programs using the chart below. As part of

(Residential Demand Response)										
Year	Summer					Winter				
	Number of Events	Average Event Size		Maximum Event Size		Number of Events	Average Event Size		Maximum Event Size	
	#	(MW)	(Part.)	(MW)	(Part.)	#	(MW)	(Part.)	(MW)	(Part.)
2005	0	0	0	0	0	0	0	0	0	0
2006	2	166	395,520	173	395,520	2	294	395,520	413	395,520
2007	4	123	389,713	264	389,713	3	261	389,713	328	389,713
2008	4	28	390,924	50	390,924	0	0	390,924	0	390,924
2009	2	115	392,137	152	392,137	1	250	392,137	250	392,137
2010	4	48	394,999	64	394,999	7	308	394,999	651	394,999
2011	2	101	399,582	188	399,582	1	101	399,582	101	399,582
2012	1	15	403,833	15	403,833	0	0	403,833	0	403,833
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0

Note:

*** Activations shown are limited to reliability events for capacity shortages.**

Data Not Available (DNA)

(Commercial Demand Response)										
Year	Summer					Winter				
	Number of Events	Average Event Size		Maximum Event Size		Number of Events	Average Event Size		Maximum Event Size	
	#	(MW)	(Part.)	(MW)	(Part.)	#	(MW)	(Part.)	(MW)	(Part.)
2005	*	*	*	*	*	*	*	*	*	*
2006	*	*	*	*	*	*	*	*	*	*
2007	*	*	*	*	*	*	*	*	*	*
2008	*	*	*	*	*	*	*	*	*	*
2009	*	*	*	*	*	*	*	*	*	*
2010	*	*	*	*	*	*	*	*	*	*
2011	*	*	*	*	*	*	*	*	*	*
2012	*	*	*	*	*	*	*	*	*	*
2013	*	*	*	*	*	*	*	*	*	*
2014	*	*	*	*	*	*	*	*	*	*

Note:

*** Commercial Demand Response is included in Residential Table above.**

Commercial Demand Response is a summer only program.

(Curtable Service Demand Response)										
Year	Summer					Winter				
	Number of Events	Average Event Size		Maximum Event Size		Number of Events	Average Event Size		Maximum Event Size	
	#	(MW)	(Part.)	(MW)	(Part.)	#	(MW)	(Part.)	(MW)	(Part.)
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	1	23	7	23	7	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	2	21	5	21	5
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0

26. For each demand response program, use the table below to provide the information listed on an annual basis for seasonal peak activations. Please also provide a summary of all demand response programs using the chart below. As part of this response, please provide an electronic version of the table below in Excel format with your response.

[All Demand Response Programs Combined or By Demand Response Program Name]							
Year	Average Number of Participants	Summer Peak			Winter Peak		
		Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005							
2006							
2007							
2008							
2009							
2010							
2011							
2012							
2013							
2014							

Response:

Please see the attached Excel file which has Tabs for questions DR1-Q24, Q25, and Q26.

All Sources of Demand Response Combined							
Year	Average Number of Participants	Summer Peak			Winter Peak		
		Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	406,379	N	0	0	N	0	0
2006	396,091	N	0	0	Y	389,170	77
2007	390,303	N	0	0	Y	390,337	30
2008	391,589	N	0	0	Y	391,511	25
2009	392,816	Y	392,763	14	N	0	0
2010	395,649	N	0	0	Y	397,621	1,105
2011	400,220	N	0	0	N	0	0
2012	404,286	N	0	0	N	0	0
2013	407,929	N	0	0	N	0	0
2014	410,267	N	0	0	N	0	0

(Residential Demand Response)							
Year	Average Number of Participants	Summer Peak			Winter Peak		
		Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	405,796	N	0	0	N	0	0
2006	395,520	N	0	0	Y	389,089	52
2007	389,713	N	0	0	Y	390,337	30
2008	390,924	N	0	0	Y	391,511	25
2009	392,137	Y	392,763	14	N	0	0
2010	394,999	N	0	0	Y	397,234	831
2011	399,582	N	0	0	N	0	0
2012	403,833	N	0	0	N	0	0
2013	407,482	N	0	0	N	0	0
2014	409,812	N	0	0	N	0	0

(Commercial Demand Response)							
Year	Average	Summer Peak			Winter Peak		
	Number of Participants	Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	355	*	*	*	*	*	*
2006	332	*	*	*	*	*	*
2007	325	*	*	*	*	*	*
2008	316	*	*	*	*	*	*
2009	316	*	*	*	*	*	*
2010	262	*	*	*	*	*	*
2011	250	*	*	*	*	*	*
2012	65	*	*	*	*	*	*
2013	65	*	*	*	*	*	*
2014	65	*	*	*	*	*	*
Note:							
<i>* Commercial Demand Response is included in Residential Table above.</i>							
<i>Commercial Demand Response is a summer only program.</i>							

(Standby Generation Demand Response)							
Year	Average	Summer Peak			Winter Peak		
	Number of Participants	Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	69	N	0	0	N	0	0
2006	81	N	0	0	Y	81	25
2007	110	N	0	0	N	0	0
2008	194	N	0	0	N	0	0
2009	210	N	0	0	N	0	0
2010	240	N	0	0	Y	240	56
2011	242	N	0	0	N	0	0
2012	249	N	0	0	N	0	0
2013	253	N	0	0	N	0	0
2014	259	N	0	0	N	0	0

(Interruptible Service Demand Response)							
Year	Average	Summer Peak			Winter Peak		
	Number of Participants	Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	151	N	0	0	N	0	0
2006	150	N	0	0	N	0	0
2007	148	N	0	0	N	0	0
2008	147	N	0	0	N	0	0
2009	146	N	0	0	N	0	0
2010	143	N	0	0	Y	143	208
2011	142	N	0	0	N	0	0
2012	135	N	0	0	N	0	0
2013	125	N	0	0	N	0	0
2014	127	N	0	0	N	0	0

(Curtable Service Demand Response)							
Year	Average	Summer Peak			Winter Peak		
	Number of Participants	Activated During Peak?	# of Participants Activated	Capacity Activated	Activated During Peak?	# of Participants Activated	Capacity Activated
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)
2005	8	N	0	0	N	0	0
2006	8	N	0	0	N	0	0
2007	7	N	0	0	N	0	0
2008	8	N	0	0	N	0	0
2009	7	N	0	0	N	0	0
2010	5	N	0	0	Y	4	10
2011	4	N	0	0	N	0	0
2012	4	N	0	0	N	0	0
2013	4	N	0	0	N	0	0
2014	4	N	0	0	N	0	0

27. For each demand response program, please describe whether the current credit is based upon the company's most recent avoided unit. If not, please explain why and provide how the credit was derived.

Response:

The current credits provided in the demand response programs are not based on the company's most recent avoided unit.

- **Residential Demand Response Program**– The credit amounts provided to customers in the residential load management program have not changed since December 1997. DEF did not propose any changes to the credits because DEF projects to achieve the targeted participation and savings levels at the current credit amounts and increasing the credits would result in higher bills for all customers in the near term.
- **General Service Load Management Program** – The credit amounts provided to customers in the General Service Load Management program have not changed since October 1995 and no changes were proposed to these credit amounts in this Plan filing. This program has been closed to new participants since July 2000.
- **Interruptible Service, Curtailable, and Stand-by Generation Programs** The credit amounts included in the Plan filing for these programs for the 2015 through 2018 period are the negotiated amounts included in DEF's 2013 Revised and Restated Stipulation and Settlement Agreement (Docket 130208-EI) which was approved by the Commission in Order PSC-13-0598-FOF-EI. DEF assumed that the credits provided through these programs would revert back to the 2012 pre-settlement levels when the settlement expires at the end of 2018.

28. For each demand response program, please provide the credit amount that would reduce the value of the program's RIM Test to 1.0.

Response:

Please see the attached DR1-Q28 Excel file.

29. For each demand response program, please discuss whether the company considered reducing the credit provided to customers. As part of this response, please discuss the expected impacts a lower credit would have on existing participation levels.

Response:

DEF did not propose any reductions to the credits provided to customers in the demand response programs for the following reasons:

- **Residential Demand Response Program** – The credits provided to customers through this program have not changed since 1997. The credits that a customer receives through this program depend on the number of load management devices the customer has installed and the customer's usage. For 2014, the average incentive received by a participant in the program was approximately \$53 in total for the year. DEF's plan assumes that 88,300 customers in total will be added to this program over the next ten year period resulting in an additional 209 winter MWs of load control. DEF is concerned that reducing the credits provided to customers could negatively impact its ability to add customers and could even increase the attrition of existing customers which would impact DEF's ability to achieve its goals. At the current credit levels, the Benefit/Cost ratio under the RIM test is 2.756.
- **General Service – Load Management** - The credit amounts provided to customers in the General Service Load Management program have not changed since October 1995 and no changes were proposed to these credit amounts in this Plan filing. This program has been closed to new participants since July 2000.
- **Interruptible/Curtailable/Stand-by Service** – The credit amounts included in the Plan filing for these programs for the 2015 through 2018 period are the amounts included in DEF's 2013 Revised and Restated Stipulation and Settlement Agreement (Docket 130208-EI) which was approved by the Commission in Order PSC-13-0598-FOF-EI. DEF assumed that the credits provided through these programs would revert back to the 2012 pre-settlement levels when the settlement expires at the end of 2018. Each of these programs is cost effective under RIM based on these assumptions. The Plan assumes that new participants will be added to all of these programs over the next ten year period which will contribute additional MWs of load control.

30. Please discuss the methodology used to estimate expected participation for each program proposed by your company. In addition, provide comparisons of the projected participation rates of continuing programs with the actual participation rates for the previous ten years (or less, depending upon the start date of the program) and provide a discussion of the comparisons.

Response:

The attached DR1-Q30 Excel file provides a table that shows participation by program for the previous ten years compared to the projected participation for the Plan period. The following provides a discussion of the methodology used to project the participation by program and discusses the comparison of the projected participation to the historical period.

Business Energy Check

The projected participation in the Business Energy Check (BEC) program tracks that of the Better Business program below. The methodology used to estimate the expected participation was based on historical trends of Better Business participation relative to BEC participation.

Better Business

The projected participation in the Better Business program reflects the aggregate of the participation for each individual measure included in this program. The methodology used to estimate the expected participation in each measure was based on an evaluation of a number of factors including historical trends, projected customer growth, the impacts of new codes and standards, the projected measure cost, the pay-back period, and the estimated incentive levels.

Projected participation is expected to decline relative to the historical period due to a number of factors, including the impact of new codes and standards, such as the tri-annual Florida Building Code, and the expiration of federal and state tax incentives and rebates that were available in the historical period.

Florida Custom Incentive Program

The projected participation was based on market assessments, previous program performance, customer interviews and vendor communications.

The scope of the Florida Custom Incentive program has changed and expanded significantly in the proposed DSM plan compared to previous years. For example, non-residential new construction measures will now be offered through this program.

Home Energy Check

The methodology used to estimate expected participation in the Home Energy Check program was based on a combination of historical results as well as factors that are expected to affect future participation. Participation over the projected period shows a downward trend which is reflective of the downward trend in the participation in the residential incentive program. The home energy check program is a pre-requisite to be eligible for participation in measures within

the residential portfolio. The number of audits completed, particularly online and phone audits which are commonly used for qualification for other measures, is expected to be directly impacted by a decrease in projected participation in the residential program.

Projected participation has declined relative to the historical period. The higher participation in the historical periods was driven by tax incentives and rebates at both the federal and state level for installation of energy efficiency measures and participation has declined since the expiration of those rebates and incentives.

Residential Incentive Program

The projected program participation reflects the aggregate of the participation for each individual measure included in the Residential Incentive Program. The methodology used to estimate the expected participation in each measure is based on an evaluation of a number of factors including historical trends, projected customer growth, the impacts of new codes and standards, the projected measure cost, the pay-back period, and the estimated incentive levels. The participation is expected to decline based on the impact of new codes and standards and a reduction in the number of cost effective measures offered through this program.

Low Income Weatherization Assistance Program

The projected participation for the Low Income Weatherization Assistance Program (LIWAP) is based on the past history of homes weatherized, as well as discussions with agencies about the additional homes that could be weatherized based on the increase in incentive amounts provided by DEF. The baseline for participation in this program is dependent on the Federal Department of Energy (DOE) funding to the agencies. The DOE funding determines the number of homes that each agency will be able to weatherize. The projected participation for the LIWAP is based on the amount of funding that the agencies expect to receive to weatherize homes in DEF's service territory.

The funding from the DOE to the agencies fluctuates from year to year. Over the historical time period, funding levels increased due to the 2009 American Recovery & Reinvestment Act (ARRA). This resulted in an increase in the number of homes that could be weatherized. For the projected period, participation is based on funding from DOE at pre-ARRA levels, resulting in a decrease in projected participation levels versus the historical period.

Neighborhood Energy Saver

For a discussion of the methodology used to estimate projected participation in the Neighborhood Energy Saver program, please see DEF's response to question 32.

Residential and Commercial Demand Response (DR) Programs

The methodology used to estimate expected participation in the demand response programs was based on a combination of evaluation of historical program subscription and attrition rates as well as factors that will impact future participation rates by program. The results of this evaluation align with contributions identified in the Integrated Resource Plan (IRP).

The Residential DR program participation is driven by marketing activities. Commercial programs participation levels are primarily driven by information about program related savings shared directly with customers by Duke Energy representatives, from customers' past experience, or from customers' interactions with its industry peers. Due to the varying and particularized energy needs of commercial customers, mass marketing efforts are not a particularly effective tool for driving customer interest.

The following provides a discussion of the projected participation to historical participation for each demand response program:

Residential - The participation in this program is expected to increase over recent years due to greater promotion and marketing activities. For 2012 - 2014, participation was impacted by reduced marketing efforts in anticipation of the rollout of new technology. DEF plans to install both new WIFI and cellular switches in customer homes beginning in 2015. For 2007-2008, a larger than expected response rate to marketing associated with the reintroduction of the year-round residential DR program drove increased participation.

Interruptible Service - DEF has projected adding one new customer each year to this program for a total of 10 customers for the projected period. Over the historical period, DEF added a total of 15 customers, ranging from 4 to 0 new customers in any one particular year. Participation in this program is driven by the specific energy needs of commercial customers.

Standby Generation- DEF projects to add 10 new customers per year for a total of 100 customers in the projected period. This is relatively consistent with participation over the past three years. In prior historical years, participation was driven by one large customer multi-year multi-site generator installation project.

Curtable Service - DEF projects to add 1 new customer to this program in the projected period compared to 0 new customers in the historical period.

31. Please fully explain the engineering simulation and statistical billing analysis methods for estimating demand and energy impacts referenced in the "Impact Evaluation Plan" for several programs.

Response:

Engineering simulation modeling begins by creating a database containing the billing and audit data for customers who have participated in a DSM program, and organizing the customer data into similar modeling groups, i.e., by building type and/or heating system type. Each group is modeled separately. The models are then calibrated such that the model-simulated monthly kWh energy use closely matches the actual monthly kWh energy use. The peak demand and energy impacts of the DSM program are computed as the difference between the model's estimate of energy use before and after installation of that program.

Statistical billing analysis utilizes monthly kWh billing usage data during the pre- and post-participation periods for a sample of program participants and, depending upon the design of the analysis, a nonparticipant (control group) sample of customers may also be selected. Data is also gathered on other factors that may affect customers' energy use during the pre- and post-participation period, such as weather conditions, appliance stock and usage information, demographics, building characteristics, customer behavior, participation in multiple measures, etc. This supporting information may come from customer audits or surveys, or from other external sources (e.g., weather data). Regression analysis is often used to measure program-specific impacts while accounting for other non-program related factors that may influence customers' usage.

32. DEF's projected annual number of program measure participants for the first 5 years of its low-income focused Neighborhood Energy Saver Program is 19,500 per year. In contrast, DEF projects 500 annual program participants per year for the Low Income Weatherization Assistance Program.

Response:

The Neighborhood Energy Saver (NES) and the Low Income Weatherization Assistance Programs (LIWAP) are designed to reach income eligible customers through different delivery channels. DEF's LIWAP is delivered as a partnership with the State Weatherization agencies, and those agencies determine participation; The NES program is delivered solely by DEF with participation based on US Census block income data. The 19,500 participants include 4,500 completed homes within the NES program and 15,000 customers who will receive a comprehensive home energy report. The comprehensive home energy

survey will assess customer usage relative to other homes in the area with similar characteristics. It will be mailed to all qualifying previous participants in the NES program from the past 8 years.

- a. How did DEF estimate participation in these two programs?

Response:

Estimated participation for NES is based upon past history and future opportunities. When the program was first implemented in 2006, the goal was 1,500 homes. In 2009, the participation goal was raised to 2,500 to reflect the Company's desire to assist more customers in this segment. From 2010 to present, the participation was increased to include a greater pool of customers due to the increase from 150% to 200% of the income poverty guidelines. From 2015-2024 we see the potential to serve more customers on an annual basis and increased the annual goal to 4,500 customers.

- b. Why is DEF's estimated participation rate for the Low Income Weatherization Assistance Program substantially lower than DEF's estimated participation rate for the Neighborhood Energy Saver Program when both programs offer energy efficiency and conservation measures for low income residents?

Response:

Although these programs both provide energy efficiency assistance for low income customers, these programs are very different. For the NES program, DEF identifies income-eligible neighborhoods based on census data. Once a neighborhood is defined, DEF employs a direct marketing campaign to identify customers and a door to door community canvassing campaign to install the measures in customer's homes using a vendor. In comparison, the LIWAP is a partnership with the State Weatherization agencies that receive federal funding within DEF's service area and those agencies determine participation depending on the amount of funding they receive. The funds that go to these agencies from DEF is based upon the number of homes that the agencies weatherize and the specific measures that they install in each home.

- c. Why does DEF's projected participation in the Neighborhood Energy Saver Program drop from 19,500 per year in 2015 to 4,500 per year beginning in 2020?

Response:

The participation in NES for 2015-2019 includes 4,500 completed homes and 15,000 customers who participated in the NES program in previous years who will receive a home energy report. DEF plans to review the effectiveness of the home energy report

to determine if the report should continue to be included in this program past 2019. Due to this uncertainty, the home energy report was not included for years 2020-2024.

33. The annual number of projected program measure participants in DEF's Better Business Program declines from 2,089 in 2015 to 86 in 2024. Please discuss why DEF is projecting such a high rate of decline in program participation.

Response:

DEF's Better Business (BB) Program represents one of several programs being proposed to meet the Commission established DSM savings goals within the Commercial/Industrial market segment. As such, the decline in projected participation reflects the factors that were discussed in the goals proceeding that supported the lower goals. Those factors include:

- Improving codes and standards will continue to reduce the number of cost effective measures that DEF can offer and the available market for utility DSM programs.
- The mix of cost effective BB measures in DEF's proposed Plan is more concentrated in high capital, long life and longer payback types of measures (such as HVAC and building envelope) than before. Once implemented, these measures will not need to be implemented again within the planning period.
- The impacts of market penetration. The "low hanging fruit" has been picked during previous years and it will be increasingly more difficult to attract participants in each succeeding year.

34. DEF states that the Better Business measures of Green Roof, Efficient Indoor Lighting, Occupancy Sensors, Efficient Compressed Air Systems, Efficient Motors, and Window Film and Window Screen are not cost-effective under RIM. Please provide the cost-effectiveness analysis for these measures.

Response:

The cost-effectiveness of these measures (except Green Roof) was evaluated as part of the DSM Goals docket, where they were deemed not cost effective under the RIM and Participant tests. The table below shows the RIM results for each individual measure evaluated.

Regarding the Green Roof measure, the DSM Plan incorrectly noted that this measure was not cost-effective under RIM. It should have stated that the measure was being removed from the program due to a lack of participation. Since 2007 there has only been one Better Business Green Roof participant and that was in 2008. DEF's proposed DSM Plan will continue to provide customers with the opportunity to pursue the Green Roof measure through the Florida Custom Incentive Program.

Measure Name	RIM B/C Ratio
100 125 LED Linear Tube 22W / All	0.35
100 132 Flood LED 14W / All	0.34
100 146 LED (12-Watt) / All	0.20
100 154 LED High Bay 83W (400W equivalent) / All	0.77
110 111 Premium T8, Electronic Ballast / College	0.91
110 111 Premium T8, Electronic Ballast / Food Store	0.82
110 111 Premium T8, Electronic Ballast / Hospital	0.83
110 111 Premium T8, Electronic Ballast / Hotel or Motel	0.84
110 111 Premium T8, Electronic Ballast / Office	0.89
110 111 Premium T8, Electronic Ballast / Other	0.90
110 111 Premium T8, Electronic Ballast / Other Healthcare	0.90
110 111 Premium T8, Electronic Ballast / Restaurant or Services	0.86
110 111 Premium T8, Electronic Ballast / Retail	0.88
110 111 Premium T8, Electronic Ballast / School	0.90
110 111 Premium T8, Electronic Ballast / Warehouse	0.83
110 112 Premium T8, EB, Reflector / Office	0.90
110 112 Premium T8, EB, Reflector / Restaurant or Services	0.87
110 112 Premium T8, EB, Reflector / Retail	0.89
110 113 Occupancy Sensor / Office	0.84
110 113 Occupancy Sensor / Restaurant or Services	0.80
110 113 Occupancy Sensor / Retail	0.82
110 114 Continuous Dimming / College	0.80
110 114 Continuous Dimming / Food Store	0.62
110 114 Continuous Dimming / Hospital	0.65
110 114 Continuous Dimming / Hotel or Motel	0.66
110 114 Continuous Dimming / Office	0.72
110 114 Continuous Dimming / Other	0.73
110 114 Continuous Dimming / Other Healthcare	0.75
110 114 Continuous Dimming / Restaurant or Services	0.70

110 114 Continuous Dimming / Retail	0.75
110 114 Continuous Dimming / School	0.74
110 114 Continuous Dimming / Warehouse	0.68
110 115 Lighting Control Tuneup / College	0.46
110 115 Lighting Control Tuneup / Food Store	0.55
110 115 Lighting Control Tuneup / Hospital	0.49
110 115 Lighting Control Tuneup / Hotel or Motel	0.33
110 115 Lighting Control Tuneup / Office	0.48
110 115 Lighting Control Tuneup / Other	0.41
110 115 Lighting Control Tuneup / Other Healthcare	0.57
110 115 Lighting Control Tuneup / Restaurant or Services	0.49
110 115 Lighting Control Tuneup / School	0.44
110 115 Lighting Control Tuneup / Warehouse	0.29
120 121 ROB Premium T8, 1EB / College	0.88
120 121 ROB Premium T8, 1EB / Food Store	0.80
120 121 ROB Premium T8, 1EB / Hospital	0.80
120 121 ROB Premium T8, 1EB / Hotel or Motel	0.77
120 121 ROB Premium T8, 1EB / Office	0.86
120 121 ROB Premium T8, 1EB / Other	0.86
120 121 ROB Premium T8, 1EB / Other Healthcare	0.88
120 121 ROB Premium T8, 1EB / Restaurant or Services	0.82
120 121 ROB Premium T8, 1EB / Retail	0.85
120 121 ROB Premium T8, 1EB / School	0.87
120 121 ROB Premium T8, 1EB / Warehouse	0.74
120 122 ROB Premium T8, EB, Reflector / College	0.93
120 122 ROB Premium T8, EB, Reflector / Food Store	0.82
120 122 ROB Premium T8, EB, Reflector / Hospital	0.84
120 122 ROB Premium T8, EB, Reflector / Hotel or Motel	0.87
120 122 ROB Premium T8, EB, Reflector / Office	0.90
120 122 ROB Premium T8, EB, Reflector / Other	0.91
120 122 ROB Premium T8, EB, Reflector / Other Healthcare	0.90
120 122 ROB Premium T8, EB, Reflector / Restaurant or Services	0.87
120 122 ROB Premium T8, EB, Reflector / Retail	0.88
120 122 ROB Premium T8, EB, Reflector / School	0.91
120 122 ROB Premium T8, EB, Reflector / Warehouse	0.86
120 123 Occupancy Sensor / College	0.86
120 123 Occupancy Sensor / Food Store	0.70
120 123 Occupancy Sensor / Hospital	0.72
120 123 Occupancy Sensor / Hotel or Motel	0.72
120 123 Occupancy Sensor / Office	0.83
120 123 Occupancy Sensor / Other	0.82
120 123 Occupancy Sensor / Other Healthcare	0.84
120 123 Occupancy Sensor / Restaurant or Services	0.78

120 123 Occupancy Sensor / Retail	0.80
120 123 Occupancy Sensor / School	0.83
120 123 Occupancy Sensor / Warehouse	0.70
120 124 Lighting Control Tuneup / College	0.39
120 124 Lighting Control Tuneup / Food Store	0.51
120 124 Lighting Control Tuneup / Hospital	0.44
120 124 Lighting Control Tuneup / Hotel or Motel	0.25
120 124 Lighting Control Tuneup / Office	0.41
120 124 Lighting Control Tuneup / Other	0.34
120 124 Lighting Control Tuneup / Other Healthcare	0.53
120 124 Lighting Control Tuneup / Restaurant or Services	0.43
120 124 Lighting Control Tuneup / Retail	0.45
120 124 Lighting Control Tuneup / School	0.37
120 124 Lighting Control Tuneup / Warehouse	0.22
130 131 CFL Screw-in 18W / College	0.66
130 131 CFL Screw-in 18W / Food Store	0.56
130 131 CFL Screw-in 18W / Hospital	0.55
130 131 CFL Screw-in 18W / Hotel or Motel	0.54
130 131 CFL Screw-in 18W / Office	0.78
130 131 CFL Screw-in 18W / Other	0.57
130 131 CFL Screw-in 18W / Other Healthcare	0.57
130 131 CFL Screw-in 18W / Restaurant or Services	0.57
130 131 CFL Screw-in 18W / Retail	0.57
130 131 CFL Screw-in 18W / School	0.57
130 131 CFL Screw-in 18W / Warehouse	0.53
140 141 CFL Hardwired, Modular 18W / Office	0.78
140 141 CFL Hardwired, Modular 18W / Restaurant or Services	0.73
140 141 CFL Hardwired, Modular 18W / Retail	0.73
150 151 PSMH, 250W, magnetic ballast / College	0.78
150 151 PSMH, 250W, magnetic ballast / Food Store	0.59
150 151 PSMH, 250W, magnetic ballast / Hospital	0.63
150 151 PSMH, 250W, magnetic ballast / Hotel or Motel	0.64
150 151 PSMH, 250W, magnetic ballast / Office	0.72
150 151 PSMH, 250W, magnetic ballast / Other	0.71
150 151 PSMH, 250W, magnetic ballast / Other Healthcare	0.73
150 151 PSMH, 250W, magnetic ballast / Restaurant or Services	0.69
150 151 PSMH, 250W, magnetic ballast / Retail	0.73
150 151 PSMH, 250W, magnetic ballast / School	0.73
150 151 PSMH, 250W, magnetic ballast / Warehouse	0.67
150 152 PSMH, 250 W, electronic ballast / College	0.79
150 152 PSMH, 250 W, electronic ballast / Food Store	0.60
150 152 PSMH, 250 W, electronic ballast / Hospital	0.63
150 152 PSMH, 250 W, electronic ballast / Hotel or Motel	0.64

150 152 PSMH, 250 W, electronic ballast / Other	0.71
150 152 PSMH, 250 W, electronic ballast / Other Healthcare	0.73
150 152 PSMH, 250 W, electronic ballast / Restaurant or Services	0.81
150 152 PSMH, 250 W, electronic ballast / Retail	0.73
150 152 PSMH, 250 W, electronic ballast / School	0.73
150 152 PSMH, 250 W, electronic ballast / Warehouse	0.67
150 153 High Bay T5 / College	0.90
150 153 High Bay T5 / Food Store	0.71
150 153 High Bay T5 / Hospital	0.78
150 153 High Bay T5 / Hotel or Motel	0.81
150 153 High Bay T5 / Office	0.85
150 153 High Bay T5 / Other	0.87
150 153 High Bay T5 / Other Healthcare	0.84
150 153 High Bay T5 / Restaurant or Services	0.82
150 153 High Bay T5 / Retail	0.84
150 153 High Bay T5 / School	0.87
150 153 High Bay T5 / Warehouse	0.82
160 161 LED Exit Sign / College	0.21
160 161 LED Exit Sign / Food Store	0.10
160 161 LED Exit Sign / Hospital	0.03
160 161 LED Exit Sign / Hotel or Motel	0.13
160 161 LED Exit Sign / Office	0.25
160 161 LED Exit Sign / Other	0.10
160 161 LED Exit Sign / Other Healthcare	0.22
160 161 LED Exit Sign / Restaurant or Services	0.43
160 161 LED Exit Sign / Retail	0.21
160 161 LED Exit Sign / School	0.21
160 161 LED Exit Sign / Warehouse	0.02
200 201 High Pressure Sodium 250W Lamp / College	0.37
200 201 High Pressure Sodium 250W Lamp / Food Store	0.41
200 201 High Pressure Sodium 250W Lamp / Hospital	0.10
200 201 High Pressure Sodium 250W Lamp / Hotel or Motel	0.38
200 201 High Pressure Sodium 250W Lamp / Office	0.31
200 201 High Pressure Sodium 250W Lamp / Other	0.46
200 201 High Pressure Sodium 250W Lamp / Other Healthcare	0.28
200 201 High Pressure Sodium 250W Lamp / Restaurant or Services	0.47
200 201 High Pressure Sodium 250W Lamp / Retail	0.31
200 201 High Pressure Sodium 250W Lamp / School	0.27
200 201 High Pressure Sodium 250W Lamp / Warehouse	0.20
300 302 High Efficiency Chiller Motors / College	0.62
300 302 High Efficiency Chiller Motors / Food Store	0.69
300 302 High Efficiency Chiller Motors / Hospital	0.70
300 302 High Efficiency Chiller Motors / Hotel or Motel	0.65

300 302 High Efficiency Chiller Motors / Office	0.76
300 302 High Efficiency Chiller Motors / Other	0.57
300 302 High Efficiency Chiller Motors / Other Healthcare	0.74
300 302 High Efficiency Chiller Motors / Restaurant or Services	0.73
300 302 High Efficiency Chiller Motors / Retail	0.69
300 302 High Efficiency Chiller Motors / School	0.66
300 302 High Efficiency Chiller Motors / Warehouse	0.34
300 311 Window Film (Standard) / College	0.81
300 311 Window Film (Standard) / Food Store	0.94
300 311 Window Film (Standard) / Hospital	0.96
300 311 Window Film (Standard) / Hotel or Motel	0.90
300 311 Window Film (Standard) / Office	0.85
300 311 Window Film (Standard) / Other	0.77
300 311 Window Film (Standard) / Other Healthcare	0.90
300 311 Window Film (Standard) / Restaurant or Services	0.95
300 311 Window Film (Standard) / Retail	0.85
300 311 Window Film (Standard) / School	0.86
300 311 Window Film (Standard) / Warehouse	0.45
320 332 Window Film (Standard) / Office	0.90
320 332 Window Film (Standard) / Restaurant or Services	0.97
340 347 Window Film (Standard) / Office	0.90
340 347 Window Film (Standard) / Restaurant or Services	0.97
360 362 Occupancy Sensor (hotels) / Office	0.88
360 362 Occupancy Sensor (hotels) / Restaurant or Services	0.89
400 401 High Efficiency Fan Motor, 15hp, 1800rpm, 92.4% / Office	0.40
400 401 High Efficiency Fan Motor, 15hp, 1800rpm, 92.4% / Restaurant or Services	0.53
400 402 Variable Speed Drive Control / College	0.63
400 402 Variable Speed Drive Control / Food Store	0.64
400 402 Variable Speed Drive Control / Hospital	0.65
400 402 Variable Speed Drive Control / Hotel or Motel	0.61
400 402 Variable Speed Drive Control / Office	0.62
400 402 Variable Speed Drive Control / Other Healthcare	0.63
400 402 Variable Speed Drive Control / Restaurant or Services	0.63
400 402 Variable Speed Drive Control / Retail	0.61
400 402 Variable Speed Drive Control / School	0.62
400 402 Variable Speed Drive Control / Warehouse	0.51
500 501 High-efficiency fan motors / Food Store	0.66
500 505 Efficient compressor motor / Food Store	0.61
500 517 LED Display Lighting / Food Store	0.53

35. On page 43 of its DSM plan, DEF discusses the Florida Custom Incentive Program.

a. How did DEF estimate the participation for this program?

Response:

Please see response to question 30.

b. How did DEF derive the proposed expenditure cap of \$2.5 million annually when all projects must pass RIM in order to be eligible for incentives?

Response:

The objective of the Florida Customer Incentive Program is to encourage customers to look for innovative ways to reduce peak demand and energy consumption. DEF plans to work with customers to identify these opportunities. Although projects must pass RIM to be eligible for incentives under this program, uncertainty exists regarding the number and types of projects and cost of projects that may be eligible. The \$2.5M annual cap is intended to balance the level of incentives for program participants with near term rate impacts for all customers. The residential rate impact for \$2.5M in incentives is projected to be less than \$.10 on a residential 1200 kwh bill. To the extent, programs or measures eligible for incentives through the Florida Custom Incentive program are expected to benefit a broader spectrum of customers, then DEF may consider developing a specific program that would allow customers to take advantage of those opportunities.

36. Please provide the projected annual expenditures for the Research and Demonstration Pilot Program.

Response:

The Research and Demonstration Pilot Program is one of the solar renewable programs that will end at the end of 2015. The projected expenditures included in the DSM Plan filing for 2015 are \$320,000.

37. Please provide the following information regarding the Company's current and proposed Technology Development Program:

- a. Provide any information/documentation regarding any planned areas of research under the proposed program.

Response:

DEF's research in Technology Development will be focused in two main areas: Energy Efficiency and Demand Response - DEF plans to develop programs to test and better understand the functionality, customer impacts, system impacts, and costs of new technologies for residential and commercial customers that provide energy savings, improve load control, and improve emergency response capability. Planned areas of research include:

- Variable capacity air conditioning systems (HVAC)
- Standardized communication to customer appliances
- Smart thermostat systems HVAC
- Electrical energy storage systems
- Thermal energy storage systems
- Control of electric vehicle charging
- Smart circuit breakers

Integration of Alternative Energy – DEF plans to develop programs that will provide information about the costs and system impacts of alternative and renewable energy sources. Planned areas of research include:

- Energy storage
 - Using DR resources to enable renewable integration
 - Determining system solar PV hosting capacity
 - Technologies to increase potential for renewable energy
- b. Provide any information/documentation regarding how the Company plans to implement any proposed or future projects.

Response:

Through the Technology Development Program, DEF will gather information about including equipment costs, potential incentives or rebates to customers and will study impacts on energy efficiency, load shapes, and system demand. The information gathered through the Technology Development Program is passed on to the Product Development team. The Product Development team will analyze the data to determine the feasibility of the technology, potential customer interest, and cost effectiveness and based on the results of that analysis may design programs.

38. What projects are currently being evaluated under the DEF's Technology Development Program? As part of your response, please provide the following: name and description of the project, initial startup date of the project, and year-to-date dollars spent on each project. Additionally, please provide a discussion on whether or not DEF believes said project(s) could result in a potential conservation program. If DEF perceives a program is imminent, please provide expected startup date.

Technology Development Program			
Project Name	Description	Implementation Date	Expenditures

Response:

Each year Duke performs research in new Energy Efficiency, Demand Response and Alternative Energy technology in order to keep apprised of technology being developed that could be applied to new customer programs in these areas. As each project advances through the development process, the knowledge gained is applied to program development. Please see the attached DR1-38 Excel file.

Technology Development Program				
Project Name	Description	Potential Program Development Areas	Implementation Date	Expenditures thru 3/31/15
Duke research on ES, EE, DR , integration of renewables	Industry research on promising technologies for potential investigation	Industry research for new project / program ideas	1/2/2015	\$19,528.71
CEA-2045 Customer Appliance EE & DR Project	Standardized Modular Appliance communication and control	This project is focused on the feasibility and potential benefits of a program for appliance demand response.	10/1/2013	\$12,078.69
USF Sustainable Electric Energy Delivery System (SEEDS)	PV with Energy Storage Cost and Performance	This project will provide additional operation data and analysis on two existing PV and energy storage systems. Data from these systems will be used to develop potential programs for customer energy storage systems.	6/30/2014	\$20,000.00
EPRI Flexible DR Project	Use of new customer DR resources to compensate for load variation and intermittent resources	This project is focused on the feasibility and potential benefits of a program for customer demand response that could be used to facilitate integration of intermittent resources.	6/6/2014	\$9,378.41
USF Florida Building Automated EE and DR Pilot	Commercial Building EE and DR through existing Building Management Systems	This project is focused on developing a cost-effective program for automated commercial demand response by interfacing with existing building management systems.	6/2/2014	\$0*
EPRI Variable Capacity Heat Pump Project	Application of Variable Capacity for EE and Peak Load Reduction	This project is focused on developing a cost-effective program for new variable capacity heat pump systems that increase energy efficiency and reduce peak system impact.	8/15/2014	\$0*
EPRI Distributed Solar Photovoltaics Project	Technology refresh allowing documentation of solar resource capability across Duke Energy Florida.	This project is focused on gathering solar PV resource data for developing potential customer solar programs.	12/8/2014	\$0*
EPRI Energy Management Circuit Breaker Project	Use of new customer breakers with communication capability for demand response	This project is to understand the potential of using smart customer panel circuit breakers for demand response, integration of renewable energy, and electric vehicles.	12/1/2014	\$0*

*No charges through 1st quarter, charges expected during the remainder of 2015

39. What current programs has the company offered to its customers as a result of the Technology Development Program? In addition to the name of the program, please provide the description, startup date and year-to-date expenditures for each program.

Response:

Please see the attached DR1-Q39 Excel file.

Program Name	Desc.	Date Started	2012	2013	2014	2015 YTD
Solar Water Heating for Low Income Residential Customers	Solar Water Heating Pilot for Low-income Residential Customers that provides a solar thermal water heating system in their residence while it is under construction	10/28/2010	\$ 124,219	\$ 123,594	\$ 136,823	\$ 3,844
Solar Water Heating with EM	Rebate for Solar Water Heater combined with participation in Energy Management	8/1/2007	\$ 217,569	\$ 170,584	\$ 185,422	\$ 33,195
Residential Solar Photovoltaic	Rebate for installation of Residential Solar PV System	10/28/2010	\$ 1,556,504	\$ 2,445,475	\$ 2,042,569	\$ 18,578
Commercial Solar Photovoltaic	Rebate for installation of Commercial Solar PV system	10/28/2010	\$ 886,728	\$ 920,291	\$ 1,098,518	\$ 4,285
Photovoltaic for Schools Pilot	Program for renewable education for students through installation of PV systems at schools and a correlating curriculum	8/1/2007	\$ 1,543,544	\$ 1,054,297	\$ 1,657,819	\$ 8,581
Steam Coil Cleaning for Packaged Terminal Air Conditioners	Incentive for Cleaning Packaged Terminal Air Conditioning Coils to improve energy efficiency	1/5/2007	\$ 1,650	\$ 16,052	\$ 6,990	\$ -
Chemical Coil Cleaning for Packaged Terminal Air Conditioners (under the Innovation Incentive program)	Incentive for Cleaning Packaged Terminal Air Conditioning Coils to improve energy efficiency	8/8/2007	\$ 34,147	\$ 15,422	\$ 8,673	\$ -

40. Please provide the amount spent on Technology Development Program programs for each of the past five years. Please provide the corresponding project name, implementation date, and dollar amount for each project.

Response:

Please see the attached DR1-Q40 Excel file.

Project	2010	2011	2012	2013	2014
Duke Research on DR, EE, Energy Storage, and Alternative Energy		\$ 28,215	\$ 28,447	\$ 14,277	\$ 70,160
University of South Florida Automated Demand Response Research					100,000
CEA-2045 Standardized Appliance Communication for Energy Management				54,700	40,746
University of South Florida Community Power System Simulation				53,499	26,660
EPRI Energy Management Circuit Breaker Project					100,000
EPRI Flexible Demand Response Project					8,325
EPRI Variable Capacity Heat Pump Project			28,832	20,681	90,000
EPRI Distributed PV Analysis					89,879
Sustainable Electric Energy Delivery Systems #2 USF Research project			73,387	28,692	20,250
Sustainable Electric Energy Delivery Systems System Maintenance and Data Collection					-
Smart Thermostat Project					65,238
Smart Water Heater Project					99,270
Smart Grid Feeder Pilot		4,452	34,745	4,965	235
Depreciation Amortization & Return		5,167	4,685	3,104	3,066
Misc. Program Expense		3,187	316	6,964	
Energy Storage Research			80,575	59,683	
Alternative/Renewable Energy DSM Projects		42,165	6,002	3,510	
DSM/Smart Electric Vehicle Charging Research				1,242	
Business Energy Pilot		6,273	875		
University of South Florida Community Power System Simulation			13,330		
Small Scale Wind Turbine		47,032	27,174		
Projects Included:					
• EPRI Variable Capacity HP Project		123,887			
• Energy Efficiency Research					
Projects Included:					
• Energy Storage Research Labor		130,153			
• EPRI P94 Energy Storage Program					
• FREEDM Center					
Projects Included:					
• EPRI Hybrid Electric Vehicle		128,810			
• Truck Stop Electrification					
• EPRI Program 18D Electric Transportation Infrastructure					
Projects Included:					
• LED Lighting Project (L-Prize)		649,106			
• Small Scale Wind Turbine					
• Econ Solar PV Operation					
• Stetson Geothermal HP Project					
• USF On-Line Efficiency Control in Facilities					
• EPRI Mobile Energy Storage Demonstration					
• EPRI Retrofit Energy Saving Devices II					
• EPRI P94 Energy Storage					
• EPRI Hybrid Electric Vehicle					
• EPRI P18D Electric Transportation Infrastructure					
Totals	\$ 649,106	\$ 519,341	\$ 298,368	\$ 251,317	\$ 713,829

Implementation date begins the first year dollars appear

41. Please complete the following chart using Excel format to illustrate the Company's expected projects in the Technology Development Program:

[R&D Program Name] – Project Name			
Year	Project Name	Description	Expected Expenditures
2015			
2016			

2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			

Response:

DEF researches and evaluates emerging technologies on an ongoing basis. As a result of this research, new projects may be proposed for more in-depth review and testing through the technology development program. The attached DR1-Q41 Excel file contains a list of projects that are currently being studied in the Technology Development program. This list will evolve over time and new projects may be added as new technologies emerge that DEF believes warrant further study and other projects may come off the list if, after more data is gathered or through further review, DEF determines that it is not probable that the technology will result in a future program.

Duke Energy Technology Development			
Year	Project Name	Description	Expected Expenditures
2015	ICE Bear	HVAC thermal storage technology	\$50,000
	Honeywell 9000 Thermostat set point adjustment DR	Alternative Demand response based on Adjusting the temperature set points instead of duty cycle.	\$100,000
	Duke Labor for research on ES, EE, DR , Renewables	Research on emerging energy efficiency, energy storage, demand response and alternative energy	\$90,000
	CEA-2045 Customer Appliance EE & DR Project	Standardized Modular Appliance communication and control	\$60,000
	USF Florida Building Automated EE and DR Pilot	Commercial Building EE and DR through existing Building Management Systems	\$15,000
	EPRI Variable Capacity Heat Pump Project	Use of new customer DR resources to compensate for load variation and intermittent resources	\$10,000
	USF SEEDS Support	PV with Energy Storage Cost and Performance	\$20,000
	EPRI DPV2 Monitoring Program	Documenting solar resource capability across Duke Energy Florida	\$10,000

	EPRi Flexible DR Project	Application of Variable Capacity for EE and Peak Load Reduction	\$15,000
	EPRi Energy Management Circuit Breaker	Use of new customer breakers with communication capability for energy efficiency, demand response, and renewable integration.	\$15,000
2016	EPRi Flexible DR Project	Application of Variable Capacity for EE and Peak Load Reduction	\$15,000
	EPRi Energy Management Circuit Breaker	Use of new customer breakers with communication capability for energy efficiency, demand response, and renewable integration.	\$15,000
	EPRi DPV2 Monitoring Program	Documenting solar resource capability across Duke Energy Florida	\$10,000
	EPRi Variable Capacity Heat Pump Project	Use of new customer DR resources to compensate for load variation and intermittent resources	\$10,000
	USF SEEDS Support	PV with Energy Storage Cost and Performance	\$10,000
	USF Florida Building Automated EE and DR Pilot	Commercial Building EE and DR through existing Building Management Systems	\$15,000
	CEA-2045 Customer Appliance EE & DR Project	Standardized Modular Appliance communication and control	\$20,000
	EPRi Flexible DR Project	Application of Variable Capacity for EE and Peak Load Reduction	\$15,000
2017	CEA-2045 Customer Appliance EE & DR Project	Standardized Modular Appliance communication and control	\$20,000
2018			
2019			
2020			
2021			
2022			
2023			
2024			