

INFORMATION SHEET

PRESIDING: Commissioner Brown-Bland, Presiding; Chair Mitchell and Commissioners Gray, and Clodfelter

PLACE: Dobbs Building, Room 2115, Raleigh, NC

DATE: Monday, September 9, 2019

TIME: 2:11 p.m. – 3:56 p.m.

DOCKET NO.: E-2, Sub 1206

VOLUME NUMBER:

COMPANIES: Duke Energy Progress, LLC

DESCRIPTION: Application of Duke Energy Progress, LLC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. § 62-133.9 and NCUC Rule R8-69

APPEARANCES

Please see attached.

WITNESSES

Please see attached.

EXHIBITS

Please see attached.

EMAIL DISTRIBUTION

TRANSCRIPT COPIES ORDERED: Fentress, Smith, Neal, and Edmondson

TRANSCRIPT PAGES: 96

PREFILED PAGES: 154

TOTAL PAGES: 250

REPORTED BY: Kim Mitchell

DATE FILED: September 27, 2019

FILED

SEP 27 2019

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N.C. Utilities Commission

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 9/9 DOCKET NO.: E-2, Sub 1206
ATTORNEY NAME and TITLE: Kendrick Fentress, Ass. ~~Att.~~ Gen. Counsel
FIRM NAME: Duke Energy
ADDRESS: _____
CITY: Raleigh STATE: NC ZIP CODE: 27602
APPEARING FOR: Duke Energy

APPLICANT: COMPLAINANT: ___ INTERVENOR: ___
PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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Electronic transcripts are available at a charge of \$5.00 per transcript

To order an electronic transcript, please provide an email address and sign below:

Email: Kendrick.Fentress@duke-energy.com

To order an electronic **confidential transcript**, please check the box and sign below:

Yes, I have signed the Confidentiality Agreement.

SIGNATURE: Kendrick Fentress

(Signature required for distribution of ALL transcripts)

NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE 09/09/19 DOCKET #: E-2, Subs 1204, 1205, 1206 & 1207
NAME AND TITLE OF ATTORNEY Robert F. Page
FIRM NAME Crisp & Page, PLLC
ADDRESS 4010 Barrett Dr., Suite 205
CITY Raleigh ZIP 27609

APPEARING FOR: Carolina Utility Customers Association, Inc.

APPLICANT	_____	COMPLAINANT	_____	INTERVENER	<input checked="" type="checkbox"/>
PROTESTANT	_____	RESPONDENT	_____	DEFENDANT	_____

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC web site at [HTTP://NCUC.commerce.state.nc.us/docksrch.html](http://NCUC.commerce.state.nc.us/docksrch.html) under the respective docket number.

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Signature: _____

NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE: 9/9/2019 DOCKET NO.: E-2 subs 1204, 1205, 1206
ATTORNEY NAME and TITLE: Benjamin Smith, Regulatory Counsel
FIRM NAME: N/A
ADDRESS: 4800 Six Forks Road, Suite 300
CITY: Raleigh STATE: NC ZIP CODE: 27609
APPEARING FOR: NCSEA

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR:
PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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**NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP**

DATE: 9/9/2019 DOCKET NO.: E-2, Sub 1206
ATTORNEY NAME and TITLE: David L. Neal, Senior Attorney + Gudrun Thompson,
FIRM NAME: Southern Environmental Law Center Senior Attorney
ADDRESS: 601 W Rosemary St., Ste 220
CITY: Chapel Hill STATE: NC ZIP CODE: 27516

APPEARING FOR: North Carolina Justice Center, North Carolina Housing Coalition, and Southern Alliance for Clean Energy

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR:
PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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SIGNATURE: [Signature]

(Signature required for distribution of **ALL** transcripts)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: September 5, 2019

DOCKET NO. E-2, 1206

NAME AND TITLE OF ATTORNEY Ralph McDonald

FIRM NAME Bailey & Dixon, L.L.P.

ADDRESS Post Office Box 1351

CITY Raleigh, NC ZIP 27602-1351

APPEARING FOR: **Carolina Industrial Group for Fair Utility Rates II (CIGFUR II)**

APPLICANT ___ COMPLAINANT ___ INTERVENER X
PROTESTANT ___ RESPONDENT ___

ORDER FOR TRANSCRIPT OF TESTIMONY:

I HEREBY ORDER ___ **COPIES** OF THE TRANSCRIPT AT \$1.00 PER PAGE.
(MINIMUM \$5.00 – G.S. 62-300(9)).

*I HEREBY ORDER ___ ASCII DISK(S) OF THE TRANSCRIPT AT \$5.00 WITH PURCHASE OF TRANSCRIPT **OR** PRICE OF TRANSCRIPT AT \$1.00 PER PAGE.

(SIGNATURE OF PARTY OR ATTORNEY ORDERING TRANSCRIPT/DISK)

*DISKS AVAILABLE UPON **REQUEST.**

NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE 9.9.19 DOCKET #: E-2, Sub 1206

PUBLIC STAFF MEMBER Lucy Edmondson

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **EMAILED** TO THE PUBLIC STAFF - PLEASE INDICATE YOUR DIVISION AS WELL AS YOUR EMAIL ADDRESS BELOW:

ACCOUNTING _____
WATER _____
COMMUNICATIONS _____
ELECTRIC _____
GAS _____
TRANSPORTATION _____
ECONOMICS _____
LEGAL lucy.edmondson@psncuc.nc.gov
CONSUMER SERVICES _____

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Signature of Public Staff Member

I/A

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1206

In the Matter of)	APPLICATION OF
Application of Duke Energy Progress, LLC)	DUKE ENERGY PROGRESS,
for Approval of Demand-Side Management)	LLC FOR APPROVAL OF
and Energy Efficiency Cost Recovery Rider)	DEMAND-SIDE
Pursuant to N.C. Gen. Stat. § 62-133.9 and)	MANAGEMENT AND
Commission Rule R8-69)	ENERGY EFFICIENCY COST
)	RECOVERY RIDER

Duke Energy Progress, LLC (“DEP” or the “Company”), pursuant to N.C. Gen. Stat. § 62-133.9 and Rule R8-69 of the Rules and Regulations of the North Carolina Utilities Commission (the “Commission”), hereby applies to the Commission for approval of its demand-side management (“DSM”) and energy efficiency (“EE”) cost recovery rider for 2020. In support of this Application, DEP respectfully shows the Commission the following:

1. The Applicant’s general offices are located at 410 South Wilmington Street, Raleigh, North Carolina 27601, and its mailing address is Post Office Box 1551, Raleigh, North Carolina 27602-1551.

2. The attorney for the Company, to whom all communications and pleadings should be addressed, is:

Kendrick Fentress
 Associate General Counsel
 Duke Energy Corporation
 P.O. Box 1551/NCRH 20
 Raleigh, North Carolina 27602
 Telephone: (919) 546-6733
Kendrick.Fentress@duke-energy.com

3. N.C. Gen. Stat. § 62-133.9(d) authorizes the Commission to approve an annual rider to the rates of electric public utilities to recover all reasonable and prudent

costs incurred for the adoption and implementation of new DSM and EE programs. Recoverable costs include, but are not limited to, all capital costs, including cost of capital and depreciation expense, administrative costs, implementation costs, incentive payments to program participants, and operating costs. Such rider shall consist of the utility's forecasted costs during the rate period and an Experience Modification Factor ("EMF") to collect the difference between the utility's actual reasonable and prudent costs incurred during the test period and actual revenues realized during the test period. The Commission is also authorized to approve incentives to utilities for adopting and implementing new DSM and EE programs, including rewards based on the sharing of savings achieved by the programs.

4. Rule R8-69(b) provides that the Commission will each year conduct a proceeding for each electric public utility to establish an annual DSM/EE rider to recover DSM- and EE-related costs.

5. According to Rule R8-69(e), the electric public utility is to file its application for recovery of DSM and EE costs at the same time it files the information required by Rule R8-55, and the Commission is to conduct an annual DSM/EE rider hearing as soon as practicable after the hearing required by Rule R8-55.

6. Pursuant to the provisions of N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69, the Company requests the establishment of a rider to recover its reasonable and prudent DSM and EE costs, including program costs, net lost revenues, incentives, and an EMF. All costs, including net lost revenues and Portfolio Performance Incentive, are calculated pursuant to the *Order Approving Revised Cost Recovery and Incentive Mechanism and Granting Waivers* issued by the Commission in Docket No. E-2, Sub 931 on January 20, 2015. The calculations of these costs, and the associated rider and EMF

rates, are described in the Direct Testimony and Exhibits of Carolyn T. Miller. The rider and EMF are intended to allow DEP to recover \$176,806,684 of DSM and EE expenses, net lost revenues, and incentives. This amount includes the estimated under-collection of \$8,787,707 associated with test period activities during the period beginning January 1, 2018 and ending December 31, 2018, and an estimated \$168,018,977 for expenses, net lost revenues, and incentives to be incurred during the rate period from January 1, 2020 through December 31, 2020.

7. Pursuant to the provisions of N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69, the Company requests Commission approval of the annual billing adjustments as follows (all shown on a cents per kilowatt-hour (“kWh”) basis with and without NC regulatory fee):

Excluding regulatory fee:

Rate Class	DSM Rate (¢/kWh)	EE Rate (¢/kWh)	DSM EMF (¢/kWh)	EE EMF Rate (¢/kWh)	DSM/EE Annual Rider (¢/kWh)
Residential	0.120	0.503	0.000	(0.029)	0.594
General Service EE		0.634		0.150	0.784
General Service DSM	0.070		(0.011)		0.059
Lighting		0.096		(0.002)	0.094

Including regulatory fee:

Rate Class	DSM Rate (¢/kWh)	EE Rate (¢/kWh)	DSM EMF (¢/kWh)	EE EMF Rate (¢/kWh)	DSM/EE Annual Rider (¢/kWh)
Residential	0.120	0.504	0.000	(0.029)	0.595
General Service EE		0.635		0.150	0.785
General Service DSM	0.070		(0.011)		0.059
Lighting		0.096		(0.002)	0.094

The DSM/EE rider will be in effect for the twelve-month period January 1, 2020 through December 31, 2020.

8. Pursuant to Commission Rule R8-69(b)(6), DEP requests approval to defer prudently incurred costs to FERC account 182.3, "Other Regulatory Assets," until recovered. In addition, pursuant to Commission Rule R8-69(b)(6), DEP requests approval to defer the costs it incurs in adopting and implementing new DSM and EE measures up to six months prior to DEP filing for Commission approval of such measures in accordance with Commission Rule R8-68.

9. The Company has included herewith, as required by Commission Rule R8-69, the direct testimony and exhibits of witnesses Carolyn T. Miller and Robert P. Evans in support of its filing and the requested change in rates.

WHEREFORE, the Company respectfully prays:

That, consistent with this Application, the Commission approve the changes to its rates as set forth in paragraph 7 above.

Respectfully submitted this the 11th day of June 2019.

By: 
Kendrick Fentress
Associate General Counsel
Duke Energy Corporation
P.O. Box 1551/NCRH 20
Raleigh, North Carolina 27602
Telephone: (919) 546-6733
Kendrick.Fentress@duke-energy.com

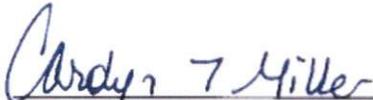
ATTORNEY FOR DUKE ENERGY
PROGRESS, LLC

VERIFICATION

STATE OF NORTH CAROLINA)
) DOCKET NO. E-2, SUB 1206
COUNTY OF MECKLENBURG)

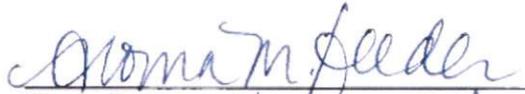
Carolyn T. Miller, being first duly sworn, deposes and says:

That she is MANAGER, RATES AND REGULATORY STRATEGY supporting DUKE ENERGY PROGRESS, LLC, applicant in the above-titled action; that she has read the foregoing Application and knows the contents thereof; that the same is true except as to the matters stated therein on information and belief; and as to those matters, she believes it to be true.



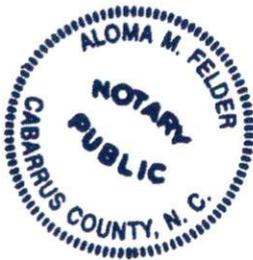
Carolyn T. Miller

Sworn to and subscribed before me
this the 4th day of June, 2019.



Notary Public Aloma M. Felder

My Commission Expires: July 21, 2020



I/A

Miller Exhibit 1

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Summary of 2020 DSM/EE Rates

	<u>Source:</u>	<u>cents/kWh</u> <u>Rate</u>	<u>Reg Fee</u>	<u>Billing Rate</u>
Residential Rate				
EMF Rate - DSM	Miller Exhibit 2, page 5	0.000	0.000	0.000
EMF Rate - EE	Miller Exhibit 2, page 4	-0.029	0.000	-0.029
Projected Rate - DSM	Miller Exhibit 2, page 2	0.120	0.000	0.120
Projected Rate - EE	Miller Exhibit 2, page 1	0.503	0.001	0.504
Total Residential Rate		0.594		0.595
General Service				
EE EMF Rate	Miller Exhibit 2, page 4	0.150	0.000	0.150
EE Projected Rate	Miller Exhibit 2, page 1	0.634	0.001	0.635
Total General Service EE Rate		0.784		0.785
DSM EMF Rate	Miller Exhibit 2, page 5	-0.011	0.000	-0.011
DSM Projected Rate	Miller Exhibit 2, page 2	0.070	0.000	0.070
Total General Service DSM Rate		0.059		0.059
Lighting EE Rate				
Lighting EE EMF Rate	Miller Exhibit 2, page 4	-0.002	0.000	-0.002
Lighting EE Projected Rate	Miller Exhibit 2, page 1	0.096	0.000	0.096
Total Lighting EE Rate		0.094		0.094

I/A

Miller Exhibit 1

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Summary of 2020 DSM/EE Rates

	<u>Source:</u>	<u>cents/kWh</u> <u>Rate</u>	<u>Reg Fee</u>	<u>Billing Rate</u>
Residential Rate				
EMF Rate - DSM	Miller Exhibit 2, page 5	0.000	0.000	0.000
EMF Rate - EE	Miller Exhibit 2, page 4	-0.029	0.000	-0.029
Projected Rate - DSM	Miller Exhibit 2, page 2	0.120	0.000	0.120
Projected Rate - EE	Miller Exhibit 2, page 1	0.503	0.001	0.504
Total Residential Rate		0.594		0.595
General Service				
EE EMF Rate	Miller Exhibit 2, page 4	0.150	0.000	0.150
EE Projected Rate	Miller Exhibit 2, page 1	0.634	0.001	0.635
Total General Service EE Rate		0.784		0.785
DSM EMF Rate	Miller Exhibit 2, page 5	-0.011	0.000	-0.011
DSM Projected Rate	Miller Exhibit 2, page 2	0.070	0.000	0.070
Total General Service DSM Rate		0.059		0.059
Lighting EE Rate				
Lighting EE EMF Rate	Miller Exhibit 2, page 4	-0.002	0.000	-0.002
Lighting EE Projected Rate	Miller Exhibit 2, page 1	0.096	0.000	0.096
Total Lighting EE Rate		0.094		0.094

F/A

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 Energy Efficiency Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Energy Allocation Factor ⁽²⁾	EE Revenue Requirements						
			Residential Programs ⁽³⁾	CIG Programs ⁽⁴⁾	DSDR ⁽⁵⁾	Non-DSDR Allocated A&G and Carrying Costs ⁽⁶⁾	DSDR Allocated A&G and Carrying Costs ⁽⁷⁾	Total of Allocated Costs ^{(8) = Σ (3 thru 7)}	Total EE Rate ^{(9) = (8) / (1)}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Residential	16,011,833,010	61.51%	\$ 58,194,033	\$ -	\$ 14,493,373	\$ 6,935,225	\$ 932,299	\$ 80,554,931	0.503
General Service	9,657,233,917	37.10%	\$ -	\$ 46,515,078	\$ 8,741,404	\$ 5,405,399	\$ 562,299	\$ 61,224,179	0.634
Lighting	360,095,612	1.38%	\$ -	\$ -	\$ 325,946	\$ -	\$ 20,967	\$ 346,913	0.096
NC Retail	26,029,162,539	100%	\$ 58,194,033	\$ 46,515,078	\$ 23,560,723	\$ 12,340,624	\$ 1,515,565	\$ 142,126,023	

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
- (2) Rate Class Energy Allocation Factor is derived in Miller Exhibit 5, page 5, column (4).
- (3) Residential Program costs are allocated solely to the Residential Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (4) Non-Residential Program costs are allocated solely to the General Service Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (5) DSDR Costs allocated using the Rate Class Energy Allocation Factor from column (2) in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (6) Non-DSDR A&G and Carrying Costs are allocated on the basis of Non-DSDR revenue requirements (excluding incentives and net lost revenues).
- (7) DSDR A&G Costs and Carrying Costs are allocated using the Rate Class Energy Allocation Factor from column (2).

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Demand-Side Management Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Demand Allocation Factor ⁽²⁾	DSM Revenue Requirements					Total of Allocated Costs (7) = Σ (3 thru 6)	Total DSM Rate (8) = (7) / (1)
			EnergyWise Program Costs ⁽³⁾	CIG DR Program ⁽⁴⁾	Allocated A&G Costs ⁽⁵⁾	Allocated Carrying Costs ⁽⁵⁾			
	(1)	(2)	(3)	(4)	(5)	(6)			
Residential	16,011,833,010	67.91%	\$15,947,958	\$ -	\$ 686,852	\$ 2,581,877	\$ 19,216,687	0.120	
General Service	9,555,153,028	32.09%	\$ -	\$ 5,157,716	\$ 319,091	\$ 1,199,460	\$ 6,676,267	0.070	
Lighting	359,358,198	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	-	
NC Retail	25,926,344,236	100.00%	\$15,947,958	\$ 5,157,716	\$ 1,005,943	\$ 3,781,337	\$ 25,892,954		

NOTES:

(1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.

(2) Rate Class Demand Allocation Factor is derived in Miller Exhibit 5, page 6, column (5).

(3) EnergyWise costs are directly assigned solely to the Residential Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.

(4) CIG DR Program costs are directly assigned solely to the General Service Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.

(5) A&G and Carrying Costs are allocated on the basis of revenue requirements (excluding incentives and net lost revenues).

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Rate Period Revenue Requirement Summary - NC Level
January 2020 - December 2020

NORTH CAROLINA JURISDICTIONALLY ALLOCATED RETAIL COSTS ONLY																		
	O&M	Insurance	A&G Expense	Capitalized O&M and A&G	Amortization of Capitalized O&M	Amortization of Capitalized A&G	Prior Period Amortization	DSDR Capital Costs	Income Taxes on DSDR Capital Costs	DSDR Property Taxes	DSDR Depreciation	Carrying Costs Net of Taxes	Income Taxes on Carrying Cost	Rev Reqmt Before PPI & NLR	Net Lost Revenue Recoupment	Program Performance Incentive	Rev Reqmt With PPI & NLR	
	(1)	(2)	(3)	(4)	(5)	(6)		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
				ICols(1) thru(3)	((1)-(2))/10 or 5 or 3	(3)/(3)								ICols(16) thru(15)			ICols(18) thru(18)	
NC DSM Program Expenses																		
1	CIG DR	Per Forecast	2,477,371	-	2,477,371	825,790	-	1,868,050	-	-	-	-	-	2,693,840	-	591,203	3,285,043	
2	EnergyWise	Per Forecast	14,470,796	-	14,470,796	1,447,080	-	8,953,564	-	-	-	-	-	10,400,644	-	5,547,314	15,947,958	
3	EnergyWise for Business	Per Forecast	2,650,110	-	2,650,110	883,370	-	1,254,609	-	-	-	-	-	2,137,979	4,606	(269,912)	1,872,673	
4	Total DSM	2 Lines 1 thru 2	19,598,277	-	19,598,277	3,156,240	-	12,076,223	-	-	-	-	-	15,232,463	4,606	5,868,605	21,105,674	
5	DSM Assigned A&G and CCost	Per Forecast	-	1,455,982	1,455,982	-	485,327	520,616	-	-	-	3,102,183	679,154	4,787,280	-	-	4,787,280	
6	Total DSM and Assigned Costs	3 Lines 4 thru 5	19,598,277	1,455,982	21,054,259	3,156,240	485,327	12,596,839	-	-	-	3,102,183	679,154	20,019,743	4,606	5,868,605	25,892,954	
NC EE Program Expenses																		
7	Res Home Advantage	Per Forecast	-	-	-	-	-	224,324	-	-	-	-	-	224,324	-	140,907	365,231	
8	Residential Smart Saver/Home En	Per Forecast	2,813,600	-	2,813,600	281,360	-	4,393,813	-	-	-	-	-	4,675,173	767,585	270,425	5,713,183	
9	Neighborhood Energy Saver	Per Forecast	1,615,854	-	1,615,854	161,585	-	1,436,173	-	-	-	-	-	1,597,758	208,358	-	1,806,116	
10	Solar Hot Water Pilot	Per Forecast	-	-	-	-	-	15,912	-	-	-	-	-	15,912	-	-	15,912	
11	EE Lighting (Res)*	Per Forecast (allocated)	3,611,482	-	3,611,482	722,296	-	8,291,860	-	-	-	-	-	9,014,156	2,811,061	3,881,545	15,706,762	
12	Res Appliance Recycling	Per Forecast	-	-	-	-	-	550,144	-	-	-	-	-	550,144	91,207	641,351		
13	My Home Energy Report*	Per Forecast	5,433,060	-	5,433,060	5,433,060	-	-	-	-	-	-	-	5,433,060	8,419,925	(45,480)	13,807,504	
14	Residential New Construction	Per Forecast	10,319,275	-	10,319,275	1,031,928	-	5,222,110	-	-	-	-	-	6,254,038	2,271,693	814,307	9,340,038	
15	Multi-Family	Per Forecast	2,319,154	-	2,319,154	463,831	-	1,698,069	-	-	-	-	-	2,161,900	2,042,340	840,986	5,045,226	
16	Energy Education Program for Sch	Per Forecast	770,392	-	770,392	154,078	-	524,829	-	-	-	-	-	678,907	333,481	-	1,012,388	
17	Save Energy and Water Kit/Applicat	Per Forecast	781,518	-	781,518	156,304	-	635,533	-	-	-	-	-	791,837	2,987,003	1,639,895	5,418,734	
18	Residential Energy Assessments	Per Forecast	1,533,680	-	1,533,680	306,736	-	1,019,452	-	-	-	-	-	1,326,188	821,033	314,978	2,462,200	
19	Residential Found Revenue	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	(8,353)	-	(8,353)	
20	Lost Revenue Decrement pending Rate Case Implementation		-	-	-	-	-	-	-	-	-	-	-	-	(3,132,260)	-	(3,132,260)	
21	Subtotal-Residential	7 Lines 7 thru 19	29,198,015	-	29,198,015	8,711,178	-	24,012,219	-	-	-	-	-	32,723,397	17,521,866	7,948,770	58,194,033	
22	CIG Energy Efficiency	Per Forecast	-	-	-	-	-	3,262,527	-	-	-	-	-	3,262,527	-	-	3,262,527	
23	EE Lighting (General Service)*	Per Forecast (allocated)	437,719	-	437,719	87,544	-	1,005,745	-	-	-	-	-	1,093,289	1,163,782	1,406,771	3,663,841	
24	Energy Efficiency for Business	Per Forecast	1,486,998	-	1,486,998	495,666	-	-	-	-	-	-	-	495,666	4,856,439	-	5,352,105	
25	Smart Saver Prescriptive	Per Forecast	8,101,571	-	8,101,571	2,700,524	-	6,636,878	-	-	-	-	-	9,337,402	1,452,377	6,438,521	17,228,300	
26	Smart Saver Custom	Per Forecast	3,398,552	-	3,398,552	1,132,851	-	1,118,645	-	-	-	-	-	2,251,496	391,253	616,392	3,259,142	
27	Smart Saver Performance Incentiv	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	428,984	206,633	635,617	
28	Small Business Energy Saver	Per Forecast	6,531,766	-	6,531,766	2,177,255	-	6,887,379	-	-	-	-	-	9,064,634	4,023,416	1,948,674	15,036,724	
29	Business Energy Report	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	Lost Revenue Decrement Pending Rate Case Implementation		-	-	-	-	-	-	-	-	-	-	-	-	(1,867,740)	-	(1,867,740)	
31	General Service Found Revenue	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	(55,439)	-	(55,439)	
	Subtotal-General Service	8 Lines 22 thru 31	19,956,606	-	19,956,606	6,593,840	-	18,911,175	-	-	-	-	-	25,505,015	10,393,072	10,616,991	46,515,078	
32	Total of EE Programs	8 Lines 22 + 31	49,154,621	-	49,154,621	15,305,018	-	42,923,394	-	-	-	-	-	58,228,412	27,914,938	18,565,761	104,709,111	
33	EE Assigned A&G and CCost	Per Forecast	-	4,072,067	4,072,067	-	1,357,356	2,134,559	-	-	-	7,259,419	1,589,290	12,340,624	-	-	12,340,624	
34	Total EE and Assigned Costs	Lines 32 + 33	49,154,621	4,072,067	53,226,688	15,305,018	1,357,356	45,057,953	-	-	-	7,259,419	1,589,290	70,569,035	27,914,938	18,565,761	117,049,735	
NC DSDR Program Expenses																		
35	DSDR Program	Per Forecast	3,633,636	638,298	4,271,934	427,193	-	4,862,747	6,110,097	1,347,951	604,587	10,208,148	-	23,560,723	-	-	23,560,723	
36	DSDR Assigned A&G and CCost	Per Forecast	-	-	-	-	-	-	-	-	-	1,243,359	272,206	1,515,565	-	-	1,515,565	
37	Total DSDR and Assigned Costs	2 Lines 35 thru 36	3,633,636	638,298	4,271,934	427,193	-	4,862,747	6,110,097	1,347,951	604,587	10,208,148	1,243,359	272,206	25,076,288	-	25,076,288	
38	Rate Period Totals	Lines 6 + 34 + 37	72,386,534	638,298	5,528,049	78,552,881	18,888,451	1,842,683	62,517,539	6,110,097	1,347,951	604,587	11,604,961	2,540,650	115,665,066	27,919,544	24,434,366	168,018,977

*All Non-Residential programs are amortized over a 3 year period. The Residential Lighting Program, Multi-Family EE, EE Education, Save Energy and Water Kit and Residential Energy Assessments are recoverable over a 5 year period. My Home Energy Report is recoverable over a 1 year period. All other Residential EE programs are recoverable over 10 years.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Energy Efficiency Experience Modification Factor Rate Derivation

EE EMF Revenue Requirement

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Energy Allocation Factor ⁽²⁾	Residential Programs ⁽³⁾	CIG Programs ⁽⁴⁾	DSDR ⁽⁵⁾	Non-DSDR Allocated A&G and Carrying Costs ⁽⁶⁾	DSDR Allocated A&G and Carrying Costs ⁽⁵⁾	Total of Allocated Costs ^{(8) = Σ (3 thru 7)}	Less: Prior Period EE Rate Adjustment ⁽⁷⁾	Adjusted EE EMF Revenue Requirement ⁽¹⁰⁾⁼⁽⁸⁾⁻⁽⁹⁾	Total EE EMF Rate (cents/kWh) ^{(11) = (10) / (1)}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Residential	16,011,833,010	61.51%	\$ 54,799,512	\$ 0	\$ 14,807,750	\$ 6,914,222	\$ 989,952	\$ 77,511,436	\$ 82,129,683	\$ (4,618,247)	(0.029)
General Service	9,657,233,917	37.10%	\$ 0	\$ 55,501,231	\$ 8,931,014	\$ 6,057,455	\$ 597,071	\$ 71,086,770	\$ 56,588,824	\$ 14,497,946	0.150
Lighting	360,095,612	1.38%	\$ 0	\$ 0	\$ 333,017	\$ -	\$ 22,263	\$ 355,280	\$ 362,466	\$ (7,186)	(0.002)
NC Retail	26,029,162,539	100.00%	\$ 54,799,512	\$ 55,501,231	\$ 24,071,781	\$ 12,971,677	\$ 1,609,286	\$ 148,953,486	\$ 139,080,973	\$ 9,872,513	

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
(2) Rate Class Energy Allocation Factor is derived in Miller Exhibit 5, page 5, column (4).
(3) Residential Program costs are allocated solely to the Residential rates in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(4) Non-residential Program costs are allocated solely to the General Service rates in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(5) DSDR Costs allocated using the Rate Class Energy Allocation Factor from column (2) in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(6) Non-DSDR A&G and Carrying Costs are allocated on the basis of Non-DSDR revenue requirements (excluding incentives and net lost revenues) assigned in preceding columns.
(7) Amounts are derived in Miller Exhibit 2, page 7.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Demand-Side Management Experience Modification Factor Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾ (1)	Rate Class Demand Allocation Factor ⁽²⁾ (2)	DSM EMF Revenue Requirement					Less: Prior Period DSM Rate Adjustment ⁽⁶⁾ (8)	Adjusted DSM EMF Revenue Requirement (9)=(7)-(8)	Total DSM EMF Rate (cents/kWh) (10) = (9) / (1)
			EnergyWise Program Costs ⁽³⁾ (3)	CIG DR Program ⁽⁴⁾ (4)	Allocated A&G Costs ⁽⁵⁾ (5)	Allocated Carrying Costs ⁽⁵⁾ (6)	Total of Allocated Costs (7) = Σ (3 thru 6)			
Residential	16,011,833,010	67.91%	\$14,654,316	\$ -	\$ 631,225	\$ 2,504,759	\$ 17,790,300	\$ 17,822,007	\$ (31,707)	-
General Service	9,555,153,028	32.09%	\$ -	\$ 3,582,289	\$ 234,392	930,089	\$ 4,746,769	\$ 5,799,983	\$ (1,053,214)	(0.011)
Lighting	359,358,198	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
NC Retail	25,926,344,236	100%	\$14,654,316	\$ 3,582,289	\$ 865,617	\$ 3,434,848	\$ 22,537,070	\$ 23,621,991	\$ (1,084,921)	

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
- (2) Rate Class Demand Allocation Factor is derived in Miller Exhibit 5, page 6, column (5).
- (3) EnergyWise costs are directly assigned solely to the Residential Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (4) CIG DR costs are directly assigned solely to the General Service Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (5) A&G and Carrying Costs are allocated on the basis of revenue requirements (excluding incentives and net lost revenues) assigned in preceding columns.
- (6) Amounts are derived in Miller Exhibit 2, page 7.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 EMF Period Revenue Requirement Summary - NC Level
 January 2018 - December 2018

	O&M (1)	Insurance (2)	A&G Expense (3)	Capitalized O&M and A&G (4) ICols(1) thru (3)	Amortization of Capitalized O&M (5) ((1)-(2))/10	Amortization of Capitalized A&G (6) (3)/3	Prior Period Amortization (7)	DSDR Capital Costs (8)	Income Taxes on DSDR Capital Costs (9)	DSDR Property Taxes (10)	DSDR Depreciation (11)	Carrying Costs Net of Taxes (12)	Income Taxes on Carrying Cost (13)	Rev Reqmt Before PPI & NLR (14) ICols(9) thru (13)	Net Lost Revenue Recoupment (15)	Program Performance Incentive (16)	Rev Reqmt With PPI & NLR (17) ICols(14) thru (16)
NC DSM Program Expenses																	
1	CIG DR			1,399,223	466,408		1,617,836							2,084,244		291,878	2,376,122
2	EnergyWise			12,087,626	1,208,763		7,832,408							9,041,171		5,613,145	14,654,316
3	EnergyWise for Business			1,733,219	577,740		695,263							1,273,003	57,289	(124,125)	1,206,167
4	Total DSM			15,220,068	2,252,910		10,145,508							12,398,418	57,289	5,780,898	18,236,605
5	DSM Assigned A&G and CCost		767,276	767,276		255,759	609,858					2,809,943	624,905	4,300,465			4,300,465
6	Total DSM and Assigned Costs		767,276	15,987,344	2,252,910	255,759	10,755,366					2,809,943	624,905	16,698,883	57,289	5,780,898	22,537,070
NC EE Program Expenses																	
7	Residential Home Advantage						380,546							380,546		176,476	557,022
8	Home Energy Improvem't			5,861,122	586,112		4,347,799							4,933,911	672,751	340,898	5,947,560
9	Neighborhood Energy Saver			1,500,588	150,059		1,314,427							1,464,486	134,180		1,598,666
10	Solar Hot Water Pilot						38,418							38,418			38,418
11	EE Lighting (Res)*			7,117,425	1,423,485		9,737,010							11,160,495	2,950,128	4,163,487	18,274,110
12	Appliance Recycling						633,915							633,915	52,165	119,754	805,834
13	My Home Energy Report			6,250,206	6,250,206									6,250,206	6,433,772	(63,585)	12,620,393
14	Residential New Construction			10,723,253	1,072,325		3,124,224							4,196,549	1,170,118	582,765	5,949,433
15	Home Depot CFL						2,495							2,495			2,495
16	Energy Education Program for Schools			550,291	110,058		390,557							500,615	218,873		719,488
17	Save Energy & Water Kits			670,940	134,188		254,418							388,606	1,630,652	941,861	2,961,119
18	Residential Energy Assessments			1,505,780	301,156		533,990							835,146	602,369	255,573	1,693,089
19	Multi-Family			1,959,175	391,835		1,187,627							1,579,462	1,441,342	615,984	3,636,788
20	Found Revenue													(4,903)			(4,903)
21	Subtotal Residential			36,138,780	10,419,425		21,945,426							32,364,851	15,301,448	7,133,214	54,799,512
22	CIG Energy Efficiency						4,114,401							4,114,401			4,114,401
23	EE Lighting (Gen Svc)*			862,454	172,491		1,181,699							1,354,190	1,207,667	1,384,376	3,946,232
24	Non-Residential Energy Efficiency Programs						9,782,959							9,782,959	8,638,552		18,421,511
25	Smart Saver Prescriptive			9,493,158	3,164,386									3,164,386		8,910,038	12,074,424
26	Smart Saver Custom			1,767,818	589,239									589,239	250,414		839,653
27	Smart Saver Performance Incentive														46,133	29,805	75,938
28	Small Business Energy Saver			7,201,646	2,400,549		6,912,075							9,312,624	4,256,047	2,630,625	16,199,295
29	Business Energy Report						36,600							36,600			36,600
30	Found Revenue													(206,825)			(206,825)
31	Subtotal General Service			19,325,076	6,326,665		22,027,734							28,354,399	13,941,574	13,205,257	55,501,231
32	Total of EE Programs			55,463,856	16,746,089		43,973,159							60,719,249	29,243,022	20,338,471	110,300,742
33	EE Assigned A&G and CCost		2,859,319	2,859,319		953,106	2,295,518					7,954,289	1,768,764	12,971,677			12,971,677
34	Total EE and Assigned Costs		2,859,319	58,323,175	16,746,089	953,106	46,268,677					7,954,289	1,768,764	73,690,927	29,243,022	20,338,471	123,272,420
NC DSDR Program Expenses																	
35	DSDR Program		670,117	4,363,638	436,364		4,756,429	6,418,064	1,427,080	603,872	10,427,643			24,069,452	2,329		24,071,781
36	DSDR Assigned A&G and CCost											1,316,534	292,752	1,609,286			1,609,286
37	Total DSDR and Assigned Costs		670,117	4,363,638	436,364		4,756,429	6,418,064	1,427,080	603,872	10,427,643	1,316,534	292,752	25,678,738	2,329		25,681,067
38	Test Period Totals		670,117	78,674,157	19,435,363	1,208,865	61,780,472	6,418,064	1,427,080	603,872	10,427,643	12,080,766	2,686,421	116,068,548	29,302,640	26,119,369	171,490,556

*All Non-Residential programs are amortized over a 3 year period. The Residential Lighting Program, Multi-Family EE and EE Education are recoverable over a 5 year period. My Home Energy Report is recoverable over a 1 year period. All other Residential EE programs are recoverable over 10 years.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 EMF Adjustment Summary
 January 2018 - December 2018

Line	Description	Residential				General Service				Lighting				Totals			
		DSM	DSDR	EE	Total	DSM	DSDR	EE	Total	DSM	DSDR	EE	Total	DSM	DSDR	EE	Total
1	Test Period DSM/EE Rate Billings ¹ <i>Amounts from Miller Exhibit 4</i>	\$ 17,729,490	\$ 18,022,227	\$ 63,559,093	\$ 99,310,811	\$ 5,663,182	\$ 10,628,046	\$ 46,092,363	\$ 62,383,592	\$ -	\$ 361,531	\$ -	\$ 361,531	\$ 23,392,672	\$ 29,011,804	\$ 109,651,457	\$ 162,055,933
2	Less: Uncollectible Allowance in Rates ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Over or (Under) collection of Uncollectibles ³	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	True up of Vintage 2016 PPI ⁴ <i>Amounts from Evans Exhibit 1 page 3</i>	-	-	(2,265)	(2,265)	-	-	-	-	-	-	-	-	-	(2,265)	(2,265)	
5	True up of Vintage 2017 PPI ⁵ <i>Amounts from Evans Exhibit 1 page 5</i>	92,517	-	(9,016)	83,501	0	-	138,845	138,845	-	-	-	-	92,517	-	129,829	222,346
6	True up of Vintage 2016 Lost Revenue through Year 2017 ⁶ <i>Amounts from Evans Exhibit 2 page 3-4</i>	-	-	(44,890)	(44,890)	-	-	0	0	-	-	-	-	-	(44,890)	(44,890)	
7	True up of Vintage 2017 Lost Revenue through Year 2017 ⁷ <i>Amounts from Evans Exhibit 2 page 3-4</i>	-	-	(8,042)	(8,042)	-	\$	(13,296)	(13,296)	-	-	-	-	-	(21,338)	(21,338)	
8	Interest on Overcollections/(Undercollections) ⁸ <i>Amounts from Miller Exhibit 3</i>	-	-	612,574	612,574	136,801	-	(257,135)	(120,333)	-	935	-	935	136,801	935	355,440	493,176
9	Net Adjustments to DSM/EE EMF Clause <i>Lines 1 through 8</i>	\$ 17,822,007	\$ 18,022,227	\$ 64,107,456	\$ 99,951,691	\$ 5,799,983	\$ 10,628,046	\$ 45,960,778	\$ 62,388,808	\$ -	\$ 362,466	\$ -	\$ 362,466	\$ 23,621,991	\$ 29,012,739	\$ 110,068,234	\$ 162,702,964
		<i>Miller Exhibit 2 page 5</i> \$82,129,683 To Miller Exhibit 2 page 4				\$56,588,824 To Miller Exhibit 2 page 4				\$139,080,973 To Miller Exhibit 2 page 4							

¹ Actual DSM/EE Rate billings for test period (January 2018 through December 2018)
² The Company is not requesting an adjustment for uncollectibles in this proceeding.
³ The Company is not requesting an adjustment for uncollectibles in this proceeding.
⁴ See Evans Exhibit 1 page 3 for a detail list of Vintage 2016 programs impacted by EM&V true-ups
⁵ See Evans Exhibit 1 page 5 for a detail list of Vintage 2017 programs impacted by EM&V true-ups
⁶ See Evans Exhibit 2 page 5 for a detail list of Vintage 2016 programs impacted by EM&V true-ups
⁷ See Evans Exhibit 2 page 5 for a detail list of Vintage 2017 programs impacted by EM&V true-ups
⁸ Calculated interest obligation associated with test period (January 1, 2018 through December 31, 2018).

Please note: Exhibit may not foot due to rounding

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Estimated Return Calculation -Non-Residential DSM Programs Vintage 2018

		Non-Residential DSM Program Costs Incurred	Non-Residential Allocated Carrying Costs & A&G	Total Program Costs Incurred	NC Non-Residential DSM Revenue Collected	NC Non- Residential DSM Program Collection %	Non- Residential DSM Program Costs Revenue Collected	(Over)/Under Collection
2017	Januar	310,834	101,042	411,875	491,392	100.0000%	(491,392)	(79,517)
2017	Febru	286,577	93,156	379,733	453,044	100.0000%	(453,044)	(73,311)
2017	March	257,208	83,610	340,818	406,616	100.0000%	(406,616)	(65,798)
2017	April	263,801	85,753	349,553	417,038	100.0000%	(417,038)	(67,485)
2017	May	270,030	87,778	357,808	426,886	100.0000%	(426,886)	(69,078)
2017	June	335,306	108,997	444,303	530,081	100.0000%	(530,081)	(85,777)
2017	July	347,719	113,032	460,750	549,703	100.0000%	(549,703)	(88,953)
2017	August	354,633	115,279	469,912	560,634	100.0000%	(560,634)	(90,721)
2017	Septer	322,487	104,830	427,317	509,815	100.0000%	(509,815)	(82,498)
2017	Octob	318,695	103,597	422,292	503,820	100.0000%	(503,820)	(81,528)
2017	Noven	298,963	97,183	396,145	472,625	100.0000%	(472,625)	(76,480)
2017	Decen	216,036	70,226	286,262	341,528	100.0000%	(341,528)	(55,266)
		3,582,289	1,164,481	4,746,769	5,663,182		(5,663,182)	(916,412)

DEP is overcollected on all components
Interest is calculated on the entire
balance.

Note 1: Revenue source - CIM CRY4 reports

Note 2: Program & Carrying Costs allocated on a weighted average basis based on revenues collected.

		Cumulative (Over)/Under Recovery	Current Income Tax Rate	Monthly Deferred Income Tax	Cumulative Deferred Income Tax	Net Deferred After Tax Balance	Monthly Return	Monthly A/T Return on Deferral	YTD After Tax Interest	Gross up of Return to Pretax Rate	Gross up of Return to Pretax
			2018 tax rate				10.00%			0.768307	
2017	Januar	(79,517)	23.5036%	(18,689)	(18,689)	(60,827)	0.008333	(253)	(253)	0.768307	(330)
2017	Febru	(152,828)	23.5036%	(17,231)	(35,920)	(116,908)	0.008333	(741)	(994)	0.768307	(1,294)
2017	March	(218,626)	23.5036%	(15,465)	(51,385)	(167,241)	0.008333	(1,184)	(2,178)	0.768307	(2,835)
2017	April	(286,111)	23.5036%	(15,861)	(67,246)	(218,865)	0.008333	(1,609)	(3,787)	0.768307	(4,929)
2017	May	(355,190)	23.5036%	(16,236)	(83,482)	(271,707)	0.008333	(2,044)	(5,831)	0.768307	(7,589)
2017	June	(440,967)	23.5036%	(20,161)	(103,643)	(337,324)	0.008333	(2,538)	(8,368)	0.768307	(10,892)
2017	July	(529,920)	23.5036%	(20,907)	(124,550)	(405,370)	0.008333	(3,095)	(11,463)	0.768307	(14,920)
2017	August	(620,641)	23.5036%	(21,323)	(145,873)	(474,768)	0.008333	(3,667)	(15,130)	0.768307	(19,693)
2017	Septer	(703,139)	23.5036%	(19,390)	(165,263)	(537,876)	0.008333	(4,219)	(19,350)	0.768307	(25,185)
2017	Octob	(784,667)	23.5036%	(19,162)	(184,425)	(600,242)	0.008333	(4,742)	(24,092)	0.768307	(31,357)
2017	Noven	(861,147)	23.5036%	(17,976)	(202,400)	(658,746)	0.008333	(5,246)	(29,338)	0.768307	(38,185)
2017	Decen	(916,412)	23.5036%	(12,989)	(215,390)	(701,023)	0.008333	(5,666)	(35,003)	0.768307	(45,559)
								(35,003)			(45,559)
						Twelve months return on 2018 Year End Balance	(701,023)	(70,102)			(91,243)
						Total return on Non-Residential DSM					(136,801)

Duke Energy Progress, LLC
 Docket No. E-2, Sub 1206
 Estimated Return Calculation - Non-Residential EE & DSDR Programs Vintage 2018

		Non-Residential EE		Total Program Costs Incurred	NC EE Non-Residential		NC DSDR Non-Residential		NC Non-Residential Program		DSDR Program Costs Revenue Collected	Total EE & DSDR Revenue Collected	(Over)/Under Collection
		Costs Incurred	DSDR Costs Incurred		Revenue Collected	Collection %	Revenue Collected	Collection %	Revenue Collected	Collection %			
2017	January	3,190,047	884,220	4,074,267	2,857,937	100.0000%	(2,857,937)	986,298	100.0000%	(986,298)	(3,844,235)	230,031	
2017	February	2,773,340	757,036	3,530,376	2,484,613	100.0000%	(2,484,613)	844,431	100.0000%	(844,431)	(3,329,044)	201,332	
2017	March	2,495,679	679,357	3,175,037	2,235,859	100.0000%	(2,235,859)	757,785	100.0000%	(757,785)	(2,993,644)	181,392	
2017	April	2,468,128	697,016	3,165,143	2,211,176	100.0000%	(2,211,176)	777,482	100.0000%	(777,482)	(2,988,658)	176,486	
2017	May	2,404,603	713,062	3,117,665	2,154,264	100.0000%	(2,154,264)	795,381	100.0000%	(795,381)	(2,949,645)	168,020	
2017	June	3,164,730	888,214	4,052,943	2,835,256	100.0000%	(2,835,256)	990,753	100.0000%	(990,753)	(3,826,009)	226,935	
2017	July	3,332,429	919,140	4,251,568	2,985,496	100.0000%	(2,985,496)	1,025,249	100.0000%	(1,025,249)	(4,010,745)	240,823	
2017	August	3,470,529	938,025	4,408,554	3,109,219	100.0000%	(3,109,219)	1,046,315	100.0000%	(1,046,315)	(4,155,534)	253,020	
2017	September	3,217,231	851,081	4,068,312	2,882,291	100.0000%	(2,882,291)	949,334	100.0000%	(949,334)	(3,831,625)	236,687	
2017	October	3,320,668	841,986	4,162,654	2,974,959	100.0000%	(2,974,959)	939,189	100.0000%	(939,189)	(3,914,148)	248,506	
2017	November	3,018,256	787,409	3,805,665	2,704,031	100.0000%	(2,704,031)	878,311	100.0000%	(878,311)	(3,582,342)	223,323	
2017	December	1,556,215	571,538	2,127,754	1,394,201	100.0000%	(1,394,201)	637,519	100.0000%	(637,519)	(2,031,720)	96,034	
		34,411,854	9,528,085	43,939,939	30,829,304		(30,829,304)	10,628,046		(10,628,046)	(41,457,350)	2,482,589	

Note 1: Revenue source - CIM CRY4 reports

Note 2: Program & Carrying Costs allocated on a weighted average basis based on revenues collected.

		Cumulative (Over)/Under Recovery	Current Income Tax Rate	Monthly Deferred Income Tax	Cumulative Deferred Income Tax	Net Deferred After Tax Balance	Monthly Return	Monthly A/T			Gross up of Return to Pretax Rate	Gross up of Return to Pretax
								Return on Deferral	YTD After Tax Interest	YTD After Tax Interest		
2018 tax rate												
							7.05%				0.768307	
							6.64%					
2017	January	230,031	23.5036%	54,066	54,066	175,966	0.005874	517	517	0.768307	673	
2017	February	431,363	23.5036%	47,320	101,386	329,977	0.005874	1,486	2,003	0.768307	2,607	
2017	March	612,755	23.5036%	42,634	144,020	468,736	0.005702	2,277	4,280	0.768307	5,571	
2017	April	789,241	23.5036%	41,480	185,500	603,741	0.005529	2,965	7,245	0.768307	9,430	
2017	May	957,261	23.5036%	39,491	224,991	732,270	0.005529	3,694	10,938	0.768307	14,237	
2017	June	1,184,195	23.5036%	53,338	278,329	905,867	0.005529	4,529	15,467	0.768307	20,132	
2017	July	1,425,019	23.5036%	56,602	334,931	1,090,088	0.005529	5,518	20,985	0.768307	27,314	
2017	August	1,678,039	23.5036%	59,469	394,400	1,283,639	0.005529	6,562	27,548	0.768307	35,855	
2017	September	1,914,726	23.5036%	55,630	450,030	1,464,697	0.005529	7,598	35,146	0.768307	45,745	
2017	October	2,163,232	23.5036%	58,408	508,437	1,654,795	0.005529	8,624	43,770	0.768307	56,970	
2017	November	2,386,555	23.5036%	52,489	560,926	1,825,629	0.005529	9,622	53,392	0.768307	69,493	
2017	December	2,482,589	23.5036%	22,571	583,498	1,899,091	0.005529	10,297	63,690	0.768307	82,896	
								63,690			82,896	
						1,899,091		133,869			174,239	
											257,138	
												Total return on Non-Residential EE programs

DEP is under-collected on program costs and undercollected in total, therefore the Company is calculating interest on the program cost piece of the balance.

Note: the monthly return was 7.05% from January until March 15, at which point the rate changed to 6.6351% after the new rate case order went into effect.

E/A

Miller Exhibit 4

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
2018 Actual Revenues

Rate Period	DSM	DSDR	EE	Total
Residential	\$ 17,729,490	\$ 18,022,227	\$ 63,559,093	\$ 99,310,811
General Service	5,663,182	10,628,046	46,092,363	62,383,592
Lighting		361,531		361,531
Total	<u>\$ 23,392,672</u>	<u>\$ 29,011,804</u>	<u>\$ 109,651,457</u>	<u>\$ 162,055,933</u>
EMF				
Residential	\$ 776,002	\$ (86,437)	\$ 3,398,058	\$ 4,087,623
General Service	(1,582,882)	(251,603)	1,285,046	(549,439)
Lighting		(3,176)		(3,176)
Total	<u>\$ (806,879)</u>	<u>\$ (341,217)</u>	<u>\$ 4,683,104</u>	<u>\$ 3,535,008</u>

EIA

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Allocation Factor Summary through test year 2015

				DSM		EE		
				NC	SC	NC	SC	
A. Allocation Factors								
1	May-08	to	Apr-09	<i>Calendar 2007 Analysis</i> ¹	86.73%	13.27%	84.81%	15.19%
1	May-09	to	Apr-10	<i>Calendar 2008 Analysis</i> ¹	86.16%	13.84%	85.06%	14.94%
2	May-10	to	Apr-11	<i>Calendar 2009 Analysis</i> ²	85.89%	14.11%	85.41%	14.59%
3	May-11	to	Apr-12	<i>Calendar 2010 Analysis</i> ³	86.49%	13.51%	85.53%	14.47%
4	May-12	to	Apr-13	<i>Calendar 2011 Analysis</i> ⁴	86.63%	13.37%	85.92%	14.08%
5	May-13	to	Apr-14	<i>Calendar 2012 Analysis</i> ⁵	86.47%	13.53%	86.06%	13.94%
6	May-14	to	Apr-15	<i>Calendar 2013 Analysis</i> ⁶	85.68%	14.32%	85.57%	14.43%
7	May-15	to	Apr-16	<i>Calendar 2014 Analysis</i> ⁷	86.23%	13.77%	85.15%	14.85%
B. Custom Period Factors								
	<i>Test Period</i> ⁴							
8	Apr-10	to	Mar-11	<i>Line 1 x 1/2 + Line 2 x 11 x 1/2</i>	85.91%	14.09%	85.38%	14.62%
	<i>Prospective Period</i> ⁴							
9	Apr-11	to	Jul-11	<i>Line 2 x 1/4 + Line 3 x 1/2</i>	86.34%	13.66%	85.50%	14.50%
	<i>Rate Period</i> ⁴							
10	Dec-11	to	Nov-12	<i>Line 3</i>	86.49%	13.51%	85.53%	14.47%
	<i>Calendar Year 2010</i> ⁸							
11	Jan-10	to	Dec-10	<i>Line 1 x 1/3 + Line 2 x 1/3</i>	85.98%	14.02%	85.29%	14.71%
	<i>Calendar Year 2011</i> ⁸							
12	Jan-11	to	Dec-11	<i>Line 2 x 1/3 + Line 3 x 1/3</i>	86.29%	13.71%	85.49%	14.51%
	<i>Calendar Year 2012</i> ⁸							
13	Jan-12	to	Dec-12	<i>Line 3 x 1/3 + Line 4 x 1/3</i>	86.58%	13.42%	85.79%	14.21%
	<i>Calendar Year 2013</i> ⁸							
14	Jan-13	to	Dec-13	<i>Line 4 x 1/3 + Line 5 x 1/3</i>	86.52%	13.48%	86.01%	13.99%
	<i>Calendar Year 2014</i> ⁸							
15	Jan-14	to	Dec-14	<i>Line 5 x 1/3 + Line 6 x 1/3</i>	85.94%	14.06%	85.73%	14.27%
	<i>Calendar Year 2015</i> ⁸							
16	Jan-15	to	Dec-15	<i>Line 6 x 1/3 + Line 7 x 1/3</i>	86.05%	13.95%	85.29%	14.71%

Notes:

- ¹ Allocation Factors values from Docket No. E-2, Sub 951
- ² Allocation Factors values from Docket No. E-2, Sub 977
- ³ Allocation Factors values from Docket No. E-2, Sub 1002
- ⁴ Allocation Factors values from Docket No. E-2, Sub 1019
- ⁵ Allocation Factors values from Docket No. E-2, Sub 1030
- ⁶ Allocation Factors values from Docket No. E-2, Sub 1044
- ⁷ Allocation Factors values from Docket No. E-2, Sub 1070
- ⁸ Employed in the allocation of Utility Cost Test (UCT) results for PPI determination.

Duke Energy Progress, LLC
 Docket No. E-2, Sub 1206
 Allocation Factor For Year 2016
 Allocation Factors from 2016 Filed Cost of Service Study

		<u>MWh</u>			
Sales Allocator at Generation					
Line 1	NC Retail MWh Sales Allocation	Company Records	38,844,804		
Line 2	SC Retail MWh Sales Allocation	Company Records	6,620,461		
Line 3	Total Retail	Line 1 + Line 2	45,465,264		
Allocation 1 to state based on kWh sales					
Line 4	NC Retail	Line 1 / Line 3	85.4384204%		
Demand Allocators (kW)					
			<u>NC</u>	<u>SC</u>	<u>Total</u>
Line 5	Residential	Company Records	3,530,456	484,305	4,014,761
Line 6	Non Residential	Company Records	4,003,521	724,998	4,728,519
Line 7	Total	Line 5 + Line 6	7,533,977	1,209,303	8,743,280
Allocation 2 to state based on peak demand					
Line 8	NC Retail	Line 7, NC / Line 7 Total	86.1687719%		
Allocation 3 NC res vs non-res Peak Demand to retail system peak					
Line 9	NC Residential	Line 5 NC / Line 7 Total	40.3790797%		
Line 10	NC Non-residential	Line 6 NC / Line 7 Total	45.7896922%		
Allocation 4 NC res vs non-res Peak Demand					
Line 11	NC Residential	Line 5 NC / Line 7 NC	46.8604563%		
Line 12	NC Non-residential	Line 6 NC / Line 7 NC	53.1395437%		

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Allocation Factor For Year 2017
Allocation Factors from 2017 Filed Cost of Service Study

		<u>MWh</u>			
Sales Allocator at Generation					
Line 1	NC Retail MWh Sales Allocation	Company Records	38,923,501		
Line 2	SC Retail MWh Sales Allocation	Company Records	6,596,650		
Line 3	Total Retail	Line 1 + Line 2	45,520,150		
Allocation 1 to state based on kWh sales					
Line 4	NC Retail	Line 1 / Line 3	85.5082864%		
Demand Allocators (kW)					
			<u>NC</u>	<u>SC</u>	<u>Total</u>
Line 5	Residential	Company Records	3,743,750	509,212	4,252,962
Line 6	Non Residential	Company Records	4,012,019	736,825	4,748,844
Line 7	Total	Line 5 + Line 6	7,755,769	1,246,037	9,001,806
Allocation 2 to state based on peak demand					
Line 8	NC Retail	Line 7, NC / Line 7 Total	86.1579245%		
Allocation 3 NC res vs non-res Peak Demand to retail system peak					
Line 9	NC Residential	Line 5 NC / Line 7 Total	41.5888790%		
Line 10	NC Non-residential	Line 6 NC / Line 7 Total	44.5690455%		
Allocation 4 NC res vs non-res Peak Demand					
Line 11	NC Residential	Line 5 NC / Line 7 NC	48.2705209%		
Line 12	NC Non-residential	Line 6 NC / Line 7 NC	51.7294791%		

NOTE: These allocation factors are used for Vintage 2017 based on the Cost of Service Study filed in May 2017.

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Allocation Factor For Year 2018 and 2019
Estimated Allocation Factor For Year 2020
Allocation Factors from 2018 Filed Cost of Service Study

		<u>MWh</u>			
Sales Allocator at Generation					
Line 1	NC Retail MWh Sales Allocation	Company Records	38,153,842		
Line 2	SC Retail MWh Sales Allocation	Company Records	6,438,789		
Line 3	Total Retail	Line 1 + Line 2	44,592,631		
Allocation 1 to state based on kWh sales					
Line 4	NC Retail	Line 1 / Line 3	85.5608674%		
Demand Allocators (kW)					
			<u>NC</u>	<u>SC</u>	<u>Total</u>
Line 5	Residential	Company Records	3,699,632	487,425	4,187,058
Line 6	Non Residential	Company Records	3,915,717	698,002	4,613,719
Line 7	Total	Line 5 + Line 6	7,615,350	1,185,427	8,800,777
Allocation 2 to state based on peak demand					
Line 8	NC Retail	Line 7, NC / Line 7 Total	86.5304240%		
Allocation 3 NC res vs non-res Peak Demand to retail system peak					
Line 9	NC Residential	Line 5 NC / Line 7 Total	42.0375642%		
Line 10	NC Non-residential	Line 6 NC / Line 7 Total	44.4928598%		
Allocation 4 NC res vs non-res Peak Demand					
Line 11	NC Residential	Line 5 NC / Line 7 NC	48.5812530%		
Line 12	NC Non-residential	Line 6 NC / Line 7 NC	51.4187470%		

NOTE: These allocation factors are used for vintages 2018-2020 based on the most recently filed Cost of Service Study (May 2018). Please also note that a cost of service study was not filed before the Rider 11 filing date in 2019.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Energy Allocation Factors - Applicable to EE Program Costs

North Carolina Rate Class Energy Allocation Factors

<u>Rate Class</u>	Total NC Rate Class Sales (MWh) ⁽¹⁾	Opt-Out Sales ⁽²⁾	Adjusted NC Rate Class MWh Sales	Rate Class Energy Allocation Factor
	(1)	(2)	(3) = (1) - (2)	(4) = (3) / NC Total in Column 3
Residential	16,011,833	-	16,011,833	61.51%
General Service	21,405,950	(11,748,716)	9,657,234	37.10%
Lighting	376,561	(16,466)	360,096	1.38%
NC Retail	37,794,345	(11,765,182)	26,029,163	100.00%

NOTES:

- (1) Total NC Rate Class Sales (MWh) are for the forecasted year ending December 2020.
(2) Opt-Out sales are provided in Miller Exhibit 6. Since sales are not forecasted by individual customer, historic opt-out sales are assumed to be unchanged during the rate recovery period.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Demand Allocation Factors - Applicable to DSM Programs

North Carolina Rate Class Demand Allocation Factors

Rate Class	Total NC Rate Class Sales ⁽¹⁾	Sales Subject to Opt-Out ⁽²⁾	Rate Class Demand ⁽³⁾	Revised Rate Class Demand	Rate Class Allocation Factor
	(1)	(2)	(3)	(4) = ((1 - 2) / 1) * 3	(5) = (4) / Total of Column 4
Residential	16,011,833	-	3,699,632	3,699,632	67.91%
General Service	21,405,950	(11,850,797)	3,915,717	1,747,891	32.09%
Lighting	376,561	(17,203)	0	0	0.00%
NC Retail	37,794,345	(11,868,000)	7,615,350	5,447,524	100.00%

NOTES:

- (1) Total NC Rate Class Sales (MWh) are for the forecasted year ended December 2020.
- (2) Opt-Out sales are provided in Miller Exhibit 6. Since sales are not forecasted by individual customer, historic opt-out sales are assumed to be unchanged during the rate recovery period.
- (3) The Coincident Peak ("CP") demands are based on the 2017 CP occurring on July 13 during the hour ended at 1700 EDT. This is the latest Cost of Service information filed at the time of the due date for the Rider 11 filing.

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 Determination of Lighting Allocation Factors

January through December 2018

		<u>Bulb %s</u>	<u>Allocation Factors</u>
1	Residential	81.70% <i>Per M&V</i>	89.19% <i>Lines 1 / (1 + 2)</i>
2	General Service	9.90% <i>Per M&V</i>	10.81% <i>Lines 2 / (1 + 2)</i>
3	Leakage	<u>8.40%</u> <i>Per M&V</i>	<u>0.00%</u> <i>-NA-</i>
4	Totals	100.00% <i>Σ Lines 1 thru 3</i>	100.00% <i>Σ Lines 1 thru 3</i>

IA

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Forecasted 2020 kWh Sales

	Spring 2019 Sales Forecast - kWh	Total 2020		
	North Carolina Retail:			
Line				
1	Residential	16,011,833,010		
2	Non-Residential	21,405,950,172		
3	Lighting	376,561,430		
4	Total Retail	<u>37,794,344,612</u>		
	Non-Residential	Gross kWh	Opt-outs	Net kWh
5	Energy Efficiency	21,405,950,172	(11,748,716,255)	9,657,233,917
6	DSM	21,405,950,172	(11,850,797,144)	9,555,153,028
7	Lighting - EE	376,561,430	(16,465,818)	360,095,612
8	Lighting - DSM	376,561,430	(17,203,232)	359,358,198

¹ Actual Opt-Out volumes for the twelve-months ending December 31, 2018.

I/A

Supplemental Miller Exhibit 1

Duke Energy Progress, LLC
Docket No. E-2, Sub 1206
Summary of 2020 DSM/EE Rates

	<u>Source:</u>	<u>cents/kWh</u> <u>Rate</u>	<u>Reg Fee</u>	<u>Billing Rate</u>
Residential Rate				
EMF Rate - DSM	Miller Exhibit 2, page 5	0.001	0.000	0.001
EMF Rate - EE	Miller Exhibit 2, page 4	-0.059	0.000	-0.059
Projected Rate - DSM	Miller Exhibit 2, page 2	0.120	0.000	0.120
Projected Rate - EE	Miller Exhibit 2, page 1	0.491	0.001	0.492
Total Residential Rate		0.553		0.554
General Service				
EE EMF Rate	Miller Exhibit 2, page 4	0.120	0.000	0.120
EE Projected Rate	Miller Exhibit 2, page 1	0.622	0.001	0.623
Total General Service EE Rate		0.742		0.743
DSM EMF Rate	Miller Exhibit 2, page 5	-0.013	0.000	-0.013
DSM Projected Rate	Miller Exhibit 2, page 2	0.070	0.000	0.070
Total General Service DSM Rate		0.057		0.057
Lighting EE Rate				
Lighting EE EMF Rate	Miller Exhibit 2, page 4	-0.033	0.000	-0.033
Lighting EE Projected Rate	Miller Exhibit 2, page 1	0.084	0.000	0.084
Total Lighting EE Rate		0.051		0.051

J/A

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Energy Efficiency Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Energy Allocation Factor ⁽²⁾	EE Revenue Requirements						
			Residential Programs ⁽³⁾	CIG Programs ⁽⁴⁾	DSDR ⁽⁵⁾	Non-DSDR Allocated A&G and Carrying Costs ⁽⁶⁾	DSDR Allocated A&G and Carrying Costs ⁽⁷⁾	Total of Allocated Costs ^{(8) = Σ (3 thru 7)}	Total EE Rate ^{(9) = (8) / (1)}
Residential	16,011,833,010	61.51%	\$ 58,221,634	\$ -	\$ 12,483,798	\$ 6,935,225	\$ 935,786	\$ 78,576,443	0.491
General Service	9,657,233,917	37.10%	\$ -	\$ 46,577,409	\$ 7,529,366	\$ 5,405,399	\$ 564,402	\$ 60,076,576	0.622
Lighting	360,095,612	1.38%	\$ -	\$ -	\$ 280,752	\$ -	\$ 21,045	\$ 301,798	0.084
NC Retail	26,029,162,539	100%	\$ 58,221,634	\$ 46,577,409	\$ 20,293,916	\$ 12,340,624	\$ 1,521,233	\$ 138,954,816	

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
- (2) Rate Class Energy Allocation Factor is derived in Miller Exhibit 5, page 5, column (4).
- (3) Residential Program costs are allocated solely to the Residential Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (4) Non-Residential Program costs are allocated solely to the General Service Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (5) DSDR Costs allocated using the Rate Class Energy Allocation Factor from column (2) in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (6) Non-DSDR A&G and Carrying Costs are allocated on the basis of Non-DSDR revenue requirements (excluding incentives and net lost revenues).
- (7) DSDR A&G Costs and Carrying Costs are allocated using the Rate Class Energy Allocation Factor from column (2).

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Demand-Side Management Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Demand Allocation Factor ⁽²⁾	DSM Revenue Requirements					Total of Allocated Costs (7) = Σ (3 thru 6)	Total DSM Rate (8) = (7) / (1)
			EnergyWise Program Costs ⁽³⁾	CIG DR Program ⁽⁴⁾	Allocated A&G Costs ⁽⁵⁾	Allocated Carrying Costs ⁽⁵⁾			
	(1)	(2)	(3)	(4)	(5)	(6)			
Residential	16,011,833,010	67.91%	\$15,926,807	\$ -	\$ 686,852	\$ 2,581,877	\$ 19,195,536	0.120	
General Service	9,555,153,028	32.09%	\$ -	\$ 5,126,667	\$ 319,091	\$ 1,199,460	\$ 6,645,218	0.070	
Lighting	359,358,198	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	-	
NC Retail	25,926,344,236	100.00%	\$15,926,807	\$ 5,126,667	\$ 1,005,943	\$ 3,781,337	\$ 25,840,754		

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
(2) Rate Class Demand Allocation Factor is derived in Miller Exhibit 5, page 6, column (5).
(3) EnergyWise costs are directly assigned solely to the Residential Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(4) CIG DR Program costs are directly assigned solely to the General Service Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(5) A&G and Carrying Costs are allocated on the basis of revenue requirements (excluding incentives and net lost revenues).

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 Rate Period Revenue Requirement Summary - NC Level
 January 2020 - December 2020

NORTH CAROLINA JURISDICTIONALLY ALLOCATED RETAIL COSTS ONLY																		
	O&M	Insurance	A&G Expense	Capitalized O&M and A&G	Amortization of Capitalized O&M	Amortization of Capitalized A&G	Prior Period Amortization	DSDR Capital Costs	Income Taxes on DSDR Capital Costs	DSDR Property Taxes	DSDR Depreciation	Carrying Costs Net of Taxes	Income Taxes on Carrying Cost	Rev Reqmt Before PPI & NLR	Net Lost Revenue Recoupment	Program Performance Incentive	Rev Reqmt With PPI & NLR	
	(1)	(2)	(3)	(4)	(5)	(6)		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
				ΣCol(1) thru (3)	((1)+(2))/10 or 5 or 3	(3)/3								ΣCol(1) thru (15)			ΣCol(1) thru (18)	
NC DSM Program Expenses																		
1	CIG DR	Per Forecast	2,477,371	-	2,477,371	825,790	-	1,868,050	-	-	-	-	-	2,693,840	-	560,154	3,253,994	
2	EnergyWise	Per Forecast	14,470,796	-	14,470,796	1,447,080	-	8,953,564	-	-	-	-	-	10,400,644	-	5,526,163	15,926,807	
3	EnergyWise for Business	Per Forecast	2,650,110	-	2,650,110	883,370	-	1,254,609	-	-	-	-	-	2,137,979	4,606	(269,912)	1,872,673	
4	Total DSM	1 Lines 1 thru 2	19,598,277	-	19,598,277	3,156,240	-	12,076,223	-	-	-	-	-	15,232,463	4,606	5,816,405	21,053,474	
5	DSM Assigned A&G and CCost	Per Forecast	-	1,455,982	1,455,982	-	485,327	520,616	-	-	-	3,102,183	679,154	4,787,280	-	-	4,787,280	
6	Total DSM and Assigned Costs	1 Lines 4 thru 5	19,598,277	1,455,982	21,054,259	3,156,240	485,327	12,596,839	-	-	-	3,102,183	679,154	20,019,743	4,606	5,816,405	25,840,754	
NC EE Program Expenses																		
7	Res Home Advantage	Per Forecast	-	-	-	-	224,324	-	-	-	-	-	-	224,324	-	140,907	365,231	
8	Residential Smart Saver/Home En	Per Forecast	2,813,600	-	2,813,600	281,360	-	4,393,813	-	-	-	-	-	4,675,173	767,585	271,821	5,714,579	
9	Neighborhood Energy Saver	Per Forecast	1,615,854	-	1,615,854	161,585	-	1,436,173	-	-	-	-	-	1,597,758	208,358	-	1,806,116	
10	Solar Hot Water Pilot	Per Forecast	-	-	-	-	-	15,912	-	-	-	-	-	15,912	-	-	15,912	
11	EE Lighting (Res)*	Per Forecast (allocated)	3,611,482	-	3,611,482	722,296	-	8,291,860	-	-	-	-	-	9,014,156	2,811,061	3,893,615	15,718,832	
12	Res Appliance Recycling	Per Forecast	-	-	-	-	-	550,144	-	-	-	-	-	550,144	91,207	-	641,351	
13	My Home Energy Report*	Per Forecast	5,433,060	-	5,433,060	5,433,060	-	-	-	-	-	-	-	5,433,060	8,419,925	(45,480)	13,807,504	
14	Residential New Construction	Per Forecast	10,319,275	-	10,319,275	1,031,928	-	5,222,110	-	-	-	-	-	6,254,038	2,271,693	819,220	9,344,951	
15	Multi-Family	Per Forecast	2,319,154	-	2,319,154	463,831	-	1,698,069	-	-	-	-	-	2,161,900	2,042,340	844,238	5,048,478	
16	Energy Education Program for Sch	Per Forecast	770,392	-	770,392	154,078	-	524,829	-	-	-	-	-	678,907	333,481	-	1,012,388	
17	Save Energy and Water Kit/Appliai	Per Forecast	781,518	-	781,518	156,304	-	635,533	-	-	-	-	-	791,837	2,987,003	1,643,647	5,422,487	
18	Residential Energy Assessments	Per Forecast	1,533,680	-	1,533,680	306,736	-	1,019,452	-	-	-	-	-	1,326,188	821,033	317,196	2,464,418	
19	Residential Found Revenue	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	(8,353)	-	(8,353)	
20	Lost Revenue Decrement pending Rate Case Implementation		-	-	-	-	-	-	-	-	-	-	-	-	(3,132,260)	-	(3,132,260)	
21	Subtotal-Residential	1 Lines 7 thru 19	29,198,015	-	29,198,015	8,711,178	-	24,012,219	-	-	-	-	-	32,723,397	17,521,866	7,976,371	58,221,634	
22	CIG Energy Efficiency	Per Forecast	-	-	-	-	3,262,527	-	-	-	-	-	-	3,262,527	-	-	3,262,527	
23	EE Lighting (General Service)*	Per Forecast (allocated)	437,719	-	437,719	87,544	-	1,005,745	-	-	-	-	-	1,093,289	1,163,782	1,408,237	3,665,307	
24	Energy Efficiency for Business	Per Forecast	1,486,998	-	1,486,998	495,666	-	-	-	-	-	-	-	495,666	4,856,439	-	5,352,105	
25	Smart Saver Prescriptive	Per Forecast	8,101,571	-	8,101,571	2,700,524	-	6,636,878	-	-	-	-	-	9,337,402	1,452,377	6,479,388	17,269,167	
26	Smart Saver Custom	Per Forecast	3,398,552	-	3,398,552	1,132,851	-	1,118,645	-	-	-	-	-	2,251,496	391,253	621,904	3,264,653	
27	Smart Saver Performance Incentiv	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	428,984	207,162	636,146	
28	Small Business Energy Saver	Per Forecast	6,531,766	-	6,531,766	2,177,255	-	6,887,379	-	-	-	-	-	9,064,634	4,023,416	1,962,632	15,050,682	
29	Business Energy Report	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	Lost Revenue Decrement Pending Rate Case Implementation		-	-	-	-	-	-	-	-	-	-	-	-	(1,867,740)	-	(1,867,740)	
31	General Service Found Revenue	Per Forecast	-	-	-	-	-	-	-	-	-	-	-	-	(55,439)	-	(55,439)	
	Subtotal-General Service	1 Lines 22 thru 31	19,956,606	-	19,956,606	6,593,840	-	18,911,175	-	-	-	-	-	25,505,015	10,393,072	10,679,322	46,577,409	
32	Total of EE Programs	1 Lines 21 + 31	49,154,621	-	49,154,621	15,305,018	-	42,923,394	-	-	-	-	-	58,228,412	27,914,938	18,655,693	104,799,043	
33	EE Assigned A&G and CCost	Per Forecast	-	4,072,067	4,072,067	-	1,357,356	2,134,559	-	-	-	7,259,419	1,589,290	12,340,624	-	-	12,340,624	
34	Total EE and Assigned Costs	Lines 32 + 33	49,154,621	4,072,067	53,226,688	15,305,018	1,357,356	45,057,953	-	-	-	7,259,419	1,589,290	70,569,035	27,914,938	18,655,693	117,139,667	
NC DSDR Program Expenses																		
35	DSDR Program	Per Forecast	3,633,636	742,255	4,375,891	437,589	-	4,868,861	7,348,392	1,621,132	604,587	4,919,205	-	19,799,766	-	-	19,799,766	
36	DSDR Assigned A&G and CCost	Per Forecast	-	-	-	-	-	-	-	-	-	1,248,009	273,224	1,521,233	-	-	1,521,233	
37	DSDR Proforma Adjustment	Per DSDR Summary analysis	-	-	-	-	-	-	-	-	494,150	-	-	494,150	-	-	494,150	
38	Total DSDR and Assigned Costs	1 Lines 35 thru 36	3,633,636	742,255	4,375,891	437,589	-	4,868,861	7,348,392	1,621,132	604,587	5,413,355	1,248,009	21,815,149	-	-	21,815,149	
39	Rate Period Totals	Lines 6 + 34 + 38	72,386,534	742,255	5,528,049	18,898,847	1,842,683	62,523,653	7,348,392	1,621,132	604,587	11,609,611	2,541,668	112,403,928	27,919,544	24,472,099	164,795,570	

*All Non-Residential programs are amortized over a 3 year period. The Residential Lighting Program, Multi-Family EE, EE Education, Save Energy and Water Kit and Residential Energy Assessments are recoverable over a 5 year period. My Home Energy Report is recoverable over a 1 year period. All other Residential EE programs are recoverable over 10 years.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Energy Efficiency Experience Modification Factor Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales (1)	Rate Class Energy Allocation Factor (2)	EE EMF Revenue Requirement								
			Residential Programs(3)	CIG Programs(4)	DSDR (5)	Non-DSDR Allocated A&G and Carrying Costs(6)	DSDR Allocated A&G and Carrying Costs(5)	Total of Allocated Costs (8) = Σ (3 thru 7)	Less: Prior Period EE Rate Adjustment(7)	Adjusted EE EMF Revenue Requirement (10)=(8)-(9)	Total EE EMF Rate (cents/kWh) (11) = (10) / (1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Residential	16,011,833,010	61.51%	\$ 54,837,402	\$0	\$ 12,559,883	\$ 6,914,222	\$ 991,297	\$ 75,302,805	\$ 84,800,421	\$ (9,497,616)	(0.059)
General Service	9,657,233,917	37.10%	\$0	\$ 55,563,562	\$ 7,575,256	\$ 6,057,455	\$ 597,882	\$ 69,794,155	\$ 58,167,271	\$ 11,626,883	0.120
Lighting	360,095,612	1.38%	\$0	\$0	\$ 282,464	\$ -	\$ 22,294	\$ 304,757	\$ 425,114	\$ (120,357)	(0.033)
NC Retail	26,029,162,539	100.00%	\$ 54,837,402	\$ 55,563,562	\$ 20,417,602	\$ 12,971,677	\$ 1,611,473	\$ 145,401,717	\$ 143,392,806	\$ 2,008,911	

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
- (2) Rate Class Energy Allocation Factor is derived in Miller Exhibit 5, page 5, column (4).
- (3) Residential Program costs are allocated solely to the Residential rates in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (4) Non-residential Program costs are allocated solely to the General Service rates in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (5) DSDR Costs allocated using the Rate Class Energy Allocation Factor from column (2) in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
- (6) Non-DSDR A&G and Carrying Costs are allocated on the basis of Non-DSDR revenue requirements (excluding incentives and net lost revenues) assigned in preceding columns.
- (7) Amounts are derived in Miller Exhibit 2, page 7.

Please note: Exhibit may not foot due to rounding

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
Demand-Side Management Experience Modification Factor Rate Derivation

NC Rate Class	Adjusted NC Rate Class kWh Sales ⁽¹⁾	Rate Class Demand Allocation Factor ⁽²⁾	DSM EMF Revenue Requirement						Less: Prior Period DSM Rate Adjustment ⁽⁶⁾	Adjusted DSM EMF Revenue Requirement (9)=(7)-(8)	Total DSM EMF Rate (cents/kWh) (10) = (9) / (1)
			EnergyWise Program Costs ⁽³⁾	CIG DR Program ⁽⁴⁾	Allocated A&G Costs ⁽⁵⁾	Allocated Carrying Costs ⁽⁵⁾	Total of Allocated Costs (7) = Σ (3 thru 6)				
Residential	16,011,833,010	67.91%	\$14,711,909	\$ -	\$ 631,225	\$ 2,504,759	\$ 17,847,893	\$ 17,737,942	\$ 109,951	0.001	
General Service	9,555,153,028	32.09%	\$ -	\$ 3,404,359	\$ 234,392	930,089	\$ 4,568,840	\$ 5,826,545	\$ (1,257,705)	(0.013)	
Lighting	359,358,198	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
NC Retail	25,926,344,236	100%	\$14,711,909	\$ 3,404,359	\$ 865,617	\$ 3,434,848	\$ 22,416,733	\$ 23,564,487	\$ (1,147,754)		

NOTES:

- (1) Rate Class Sales, excluding "Opt-Out" sales, are derived in Miller Exhibit 6.
(2) Rate Class Demand Allocation Factor is derived in Miller Exhibit 5, page 6, column (5).
(3) EnergyWise costs are directly assigned solely to the Residential Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(4) CIG DR costs are directly assigned solely to the General Service Rate Class in compliance with Commission's Order in Docket No. E-2, Sub 931, dated 1/20/15.
(5) A&G and Carrying Costs are allocated on the basis of revenue requirements (excluding incentives and net lost revenues) assigned in preceding columns.
(6) Amounts are derived in Miller Exhibit 2, page 7.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
Docket No. E-2, Sub 1206
EMF Period Revenue Requirement Summary - NC Level
January 2018 - December 2018

	O&M	Insurance	A&G Expense	Capitalized O&M and A&G	Amortization of Capitalized O&M	Amortization of Capitalized A&G	Prior Period Amortization	DSDR Capital Costs	Income Taxes on DSDR Capital Costs	DSDR Property Taxes	DSDR Depreciation	Carrying Costs Net of Taxes	Income Taxes on Carrying Cost	Rev Reqmt Before PPI & NLR	Net Lost Revenue Recoupment	Program Performance Incentive	Rev Reqmt With PPI & NLR	
	(1)	(2)	(3)	(4) 2Cols(1) thru(3)	(5) (1)+(2) *10	(6) (3)/3	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14) 1Col(5) thru(13)	(15)	(16)	(17) 1Col(14) thru(16)	
NC DSM Program Expenses																		
1	CIG DR	1,399,223		1,399,223	466,408	-	1,617,836							2,084,244		260,829	2,345,073	
2	EnergyWise	12,087,626		12,087,626	1,208,763	-	7,832,408							9,041,171		5,670,738	14,711,909	
3	EnergyWise for Business	1,733,219		1,733,219	577,740	-	695,263							1,273,003	57,289	(271,006)	1,059,286	
4	Total DSM	15,220,068		15,220,068	2,252,910	-	10,145,508							12,398,418	57,289	5,660,561	18,116,268	
5	DSM Assigned A&G and CCost		767,276	767,276		255,759	609,858					2,809,943	624,905	4,300,465			4,300,465	
6	Total DSM and Assigned Costs	15,220,068		15,987,344	2,252,910	255,759	10,755,366					2,809,943	624,905	16,698,883	57,289	5,660,561	22,416,733	
NC EE Program Expenses																		
7	Residential Home Advantage						380,546							380,546		176,476	557,022	
8	Home Energy Improvem't	5,861,122		5,861,122	586,112		4,347,799							4,933,911	672,751	342,294	5,948,956	
9	Neighborhood Energy Saver	1,500,588		1,500,588	150,059		1,314,427							1,464,486	134,180	-	1,598,666	
10	Solar Hot Water Pilot						38,418							38,418		-	38,418	
11	EE Lighting (Res)*	7,117,425		7,117,425	1,423,485		9,737,010							11,160,495	2,950,128	4,175,557	18,286,180	
12	Appliance Recycling						633,915							633,915	52,165	119,754	805,834	
13	My Home Energy Report	6,250,206		6,250,206	6,250,206									6,250,206	6,433,772	(53,295)	12,630,682	
14	Residential New Construction	10,723,253		10,723,253	1,072,325		3,124,224							4,196,549	1,170,118	587,678	5,954,345	
15	Home Depot CFL						2,495							2,495		-	2,495	
16	Energy Education Program for Schools	550,291		550,291	110,058		390,557							500,615	218,873	-	719,488	
17	Save Energy & Water Kits	670,940		670,940	134,188		254,418							388,606	1,630,652	945,613	2,964,871	
18	Residential Energy Assessments	1,505,780		1,505,780	301,156		533,990							835,146	602,369	257,791	1,695,307	
19	Multi-Family	1,959,175		1,959,175	391,835		1,187,627							1,579,462	1,441,342	619,236	3,640,040	
20	Found Revenue														(4,903)		(4,903)	
21	Subtotal-Residential	36,138,780		36,138,780	10,419,425	-	21,945,426							32,364,851	15,301,448	7,171,104	54,837,402	
22	CIG Energy Efficiency						4,114,401							4,114,401			4,114,401	
23	EE Lighting (Gen Svc)*	862,454		862,454	172,491		1,181,699							1,354,190	1,207,667	1,385,841	3,947,698	
24	Non-Residential Energy Efficiency Programs						9,782,959							9,782,959	8,638,552		18,421,511	
25	Smart Saver Prescriptive	9,493,158		9,493,158	3,164,386									3,164,386		8,950,905	12,115,291	
26	Smart Saver Custom	1,767,818		1,767,818	589,239									589,239		255,925	845,165	
27	Smart Saver Performance Incentive														46,133	30,334	76,467	
28	Small Business Energy Saver	7,201,646		7,201,646	2,400,549		6,912,075							9,312,624	4,256,047	2,644,583	16,213,254	
29	Business Energy Report						36,600							36,600			36,600	
30	Found Revenue														(206,825)		(206,825)	
30	Subtotal-General Service	19,325,076		19,325,076	6,326,665	-	22,027,734							28,354,399	13,941,574	13,267,589	55,563,562	
31	Total of EE Programs	55,463,856		55,463,856	16,746,089	-	43,973,159							60,719,249	29,243,022	20,438,693	110,400,964	
32	EE Assigned A&G and CCost		2,859,319	2,859,319		953,106	2,295,518					7,954,289	1,768,764	12,971,677			12,971,677	
33	Total EE and Assigned Costs	55,463,856	2,859,319	58,323,175	16,746,089	953,106	46,268,677					7,954,289	1,768,764	73,690,927	29,243,022	20,438,693	123,372,641	
NC DSDR Program Expenses																		
34	DSDR Program	3,693,521	706,500	4,400,021	440,002		4,758,905	6,814,622	1,515,346	603,872	5,850,145			19,982,892	2,329		19,985,221	
35	DSDR Proforma Adjustments										432,382			432,382			432,382	
36	DSDR Assigned A&G and CCost											1,318,323	293,150	1,611,473			1,611,473	
37	Total DSDR and Assigned Costs	3,693,521	706,500	4,400,021	440,002	-	4,758,905	6,814,622	1,515,346	603,872	6,282,527	1,318,323	293,150	22,026,747	2,329	-	22,029,075	
38	Test Period Totals	74,377,445	706,500	3,626,595	78,710,540	19,439,001	1,208,865	61,782,948	6,814,622	1,515,346	603,872	6,282,527	12,082,555	2,686,819	112,416,557	29,302,640	26,099,254	167,818,449

*All Non-Residential programs are amortized over a 3 year period. The Residential Lighting Program, Multi-Family EE and EE Education are recoverable over a 5 year period. My Home Energy Report is recoverable over a 1 year period. All other Residential EE programs are recoverable over 10 years.

Please note: Exhibit may not foot due to rounding.

DUKE ENERGY PROGRESS, LLC
 Docket No. E-2, Sub 1206
 EMF Adjustment Summary
 January 2018 - December 2018

Line	Description	Residential				General Service				Lighting				Totals			
		DSM	DSDR	EE	Total	DSM	DSDR	EE	Total	DSM	DSDR	EE	Total	DSM	DSDR	EE	Total
1	Test Period DSM/EE Rate Billings ¹ <i>Amounts from Miller Exhibit 4</i>	\$ 17,729,490	\$ 18,022,227	\$ 63,559,093	\$ 99,310,811	\$ 5,663,182	\$ 10,628,046	\$ 46,092,363	\$ 62,383,592	\$ -	\$ 361,531	\$ -	\$ 361,531	\$ 23,392,672	\$ 29,011,804	\$ 109,651,457	\$ 162,055,933
2	Less: Uncollectible Allowance in Rates ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Over or (Under) collection of Uncollectibles ³	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3a	True up of Vintage 2015 DSDR Depreciation & Interest		541,569			361,733				13,423		13,423		916,726		916,726	
3b	True up of Vintage 2016 DSDR Depreciation & Interest		508,073			328,056				12,002		12,002		848,132		848,132	
3c	True up of Vintage 2017 DSDR Depreciation & Interest		980,245			613,595				22,498		22,498		1,616,338		1,616,338	
4	True up of Vintage 2016 PPI ⁴ <i>Amounts from Evans Exhibit 1 page 3</i>	-		(2,265)	(2,265)	-		-	-	-		-	-		(2,265)	(2,265)	
5	True up of Vintage 2017 PPI ⁵ <i>Amounts from Evans Exhibit 1 page 5</i>	8,452		(9,016)	(564)	0		138,845	138,845				8,452		129,829	138,281	
6	True up of Vintage 2016 Lost Revenue through Year 2017 ⁶ <i>Amounts from Evans Exhibit 2 page 3-4</i>			(44,890)	(44,890)			0	0						(44,890)	(44,890)	
7	True up of Vintage 2017 Lost Revenue through Year 2017 ⁷ <i>Amounts from Evans Exhibit 2 page 3-4</i>			(8,042)	(8,042)		\$	(13,296)	(13,296)							(21,338)	(21,338)
8	Interest on Overcollections/(Undercollections) ⁸ <i>Amounts from Miller Exhibit 3</i>	-	-	1,253,424	1,253,424	163,363	-	17,928	181,291	-	15,660	-	15,660	163,363	15,660	1,271,352	1,450,374
9	Net Adjustments to DSM/EE EMF Clause <i>1 Lines 1 through 8</i>	\$ 17,737,942	\$ 20,052,115	\$ 64,748,305	\$ 100,508,475	\$ 5,826,545	\$ 11,931,430	\$ 46,235,841	\$ 62,690,432	\$ -	\$ 425,114	\$ -	\$ 425,114	\$ 23,564,487	\$ 32,408,660	\$ 110,984,146	\$ 166,957,293
		\$84,800,421 <i>To Miller Exhibit 2 page 4</i>				\$58,167,271 <i>To Miller Exhibit 2 page 4</i>				\$143,392,806 <i>To Miller Exhibit 2 page 4</i>							

¹ Actual DSM/EE Rate billings for test period (January 2018 through December 2018).
² The Company is not requesting an adjustment for uncollectibles in this proceeding.
³ The Company is not requesting an adjustment for uncollectibles in this proceeding.
⁴ See Evans Exhibit 1 page 3 for a detail list of Vintage 2016 programs impacted by EM&V true-ups
⁵ See Evans Exhibit 1 page 5 for a detail list of Vintage 2017 programs impacted by EM&V true-ups
⁶ See Evans Exhibit 2 page 5 for a detail list of Vintage 2016 programs impacted by EM&V true-ups
⁷ See Evans Exhibit 2 page 5 for a detail list of Vintage 2017 programs impacted by EM&V true-ups
⁸ Calculated interest obligation associated with test period (January 1, 2018 through December 31, 2018).

Please note: Exhibit may not foot due to rounding.

I/A

Duke Energy Progress, LLC
 Docket No. E-2, Sub 1206
 Estimated Return Calculation - Residential EE & DSM Programs Vintage 2018

	Residential EE Costs, PPI & LR	Residential DSM Costs and PPI	Residential DSDR Program Costs Incurred	Total EE and DSM to be recovered	NC Residential Revenue Collected	NC Residential EE Program Collection %	EE Program Costs Revenue Collected	(Over)/Under Collection
2018 January	8,179,120	2,365,327	1,527,606	12,072,053	13,167,598	100.00%	(13,167,598)	(1,095,545)
2018 February	5,613,263	1,623,305	1,048,383	8,284,951	9,036,814	100.00%	(9,036,814)	(751,863)
2018 March	4,329,664	1,252,100	808,647	6,390,410	6,970,343	100.00%	(6,970,343)	(579,933)
2018 April	4,191,800	1,212,231	782,898	6,186,928	6,748,395	100.00%	(6,748,395)	(561,467)
2018 May	3,742,857	1,082,400	699,049	5,524,307	6,025,640	100.00%	(6,025,640)	(501,334)
2018 June	5,174,413	1,496,393	966,420	7,637,226	8,330,308	100.00%	(8,330,308)	(693,082)
2018 July	5,844,276	1,690,112	1,091,529	8,625,918	9,408,724	100.00%	(9,408,724)	(782,806)
2018 August	5,723,953	1,655,315	1,069,057	8,448,325	9,215,015	100.00%	(9,215,015)	(766,690)
2018 September	5,172,910	1,495,959	966,139	7,635,008	8,327,889	100.00%	(8,327,889)	(692,881)
2018 October	4,658,273	1,347,130	870,021	6,875,424	7,499,373	100.00%	(7,499,373)	(623,948)
2018 November	3,949,143	1,142,056	737,577	5,828,777	6,357,741	100.00%	(6,357,741)	(528,964)
2018 December	5,107,740	1,477,112	953,967	7,538,819	8,222,971	100.00%	(8,222,971)	(684,152)
	61,687,413	17,839,441	11,521,292	91,048,146	99,310,811			(8,262,665)

DEP is overcollected on all components
 Interest is calculated on the entire
 balance.

Note 1: Revenue source - CIM CRY4 reports
 Note 2: Program & Carrying Costs allocated on a weighted average basis based on revenues collected.

	Cumulative (Over)/Under Recovery	Current Income Tax Rate	Monthly Deferred Income Tax	Cumulative Deferred Income Tax	Net Deferred After Tax Balance	Monthly Return	Monthly A/T Return on Deferral	YTD After Tax Interest	Gross up of Return to Pretax Rate	Gross up of Return to Pretax
2018 tax rate										
						10.00%			0.768307	
2018 January	(1,095,545)	23.5036%	(257,492)	(257,492)	(838,052)	0.008333	(3,492)	(3,492)	0.768307	(4,545)
2018 February	(1,847,408)	23.5036%	(176,715)	(434,207)	(1,413,201)	0.008333	(9,380)	(12,872)	0.768307	(16,754)
2018 March	(2,427,341)	23.5036%	(136,305)	(570,513)	(1,856,829)	0.008333	(13,625)	(26,497)	0.768307	(34,488)
2018 April	(2,988,808)	23.5036%	(131,965)	(702,477)	(2,286,331)	0.008333	(17,263)	(43,760)	0.768307	(56,957)
2018 May	(3,490,142)	23.5036%	(117,831)	(820,309)	(2,669,833)	0.008333	(20,651)	(64,411)	0.768307	(83,835)
2018 June	(4,183,224)	23.5036%	(162,899)	(983,208)	(3,200,015)	0.008333	(24,458)	(88,869)	0.768307	(115,668)
2018 July	(4,966,030)	23.5036%	(183,988)	(1,167,196)	(3,798,834)	0.008333	(29,162)	(118,031)	0.768307	(153,624)
2018 August	(5,732,720)	23.5036%	(180,200)	(1,347,396)	(4,385,324)	0.008333	(34,101)	(152,131)	0.768307	(198,008)
2018 September	(6,425,600)	23.5036%	(162,852)	(1,510,247)	(4,915,353)	0.008333	(38,753)	(190,884)	0.768307	(248,448)
2018 October	(7,049,549)	23.5036%	(146,650)	(1,656,898)	(5,392,651)	0.008333	(42,950)	(233,834)	0.768307	(304,350)
2018 November	(7,578,513)	23.5036%	(124,326)	(1,781,223)	(5,797,290)	0.008333	(46,625)	(280,459)	0.768307	(365,035)
2018 December	(8,262,665)	23.5036%	(160,800)	(1,942,024)	(6,320,641)	0.008333	(50,491)	(330,950)	0.768307	(430,753)
							(330,950)			(430,753)
Twelve months return on 2018 Year End Balance					(6,320,641)		(632,064)			(822,671)
Total return on Residential EE& DSM Programs										(1,253,424)

Duke Energy Progress, LLC
 Docket No. E-2, Sub 1206
 Estimated Return Calculation - Non-Residential EE & DSDR Programs Vintage 2018

		Non-Residential EE Costs Incurred	Non-Residential DSDR Costs Incurred	Total Program Costs Incurred	NC EE Non-Residential Revenue Collected	NC Non-Residential EE Program Collection %	Total EE Revenue Collected	NC DSDR Non- Residential Revenue Collected	NC Non- Residential DSDR Program Collection %	DSDR Program Costs Revenue Collected	Total EE & DSDR Revenue Collected	(Over)/Under Collection
2018	January	3,190,047	637,523	3,827,570	2,857,937	100.0000%	(2,857,937)	986,298	100.0000%	(986,298)	(3,844,235)	(16,665)
2018	February	2,773,340	545,823	3,319,163	2,484,613	100.0000%	(2,484,613)	844,431	100.0000%	(844,431)	(3,329,044)	(9,881)
2018	March	2,495,679	489,817	2,985,496	2,235,859	100.0000%	(2,235,859)	757,785	100.0000%	(757,785)	(2,993,644)	(8,148)
2018	April	2,468,128	502,549	2,970,676	2,211,176	100.0000%	(2,211,176)	777,482	100.0000%	(777,482)	(2,988,658)	(17,981)
2018	May	2,404,603	514,118	2,918,721	2,154,264	100.0000%	(2,154,264)	795,381	100.0000%	(795,381)	(2,949,645)	(30,924)
2018	June	3,164,730	640,403	3,805,132	2,835,256	100.0000%	(2,835,256)	990,753	100.0000%	(990,753)	(3,826,009)	(20,877)
2018	July	3,332,429	662,700	3,995,129	2,985,496	100.0000%	(2,985,496)	1,025,249	100.0000%	(1,025,249)	(4,010,745)	(15,616)
2018	August	3,470,529	676,317	4,146,846	3,109,219	100.0000%	(3,109,219)	1,046,315	100.0000%	(1,046,315)	(4,155,534)	(8,688)
2018	September	3,217,231	613,630	3,830,861	2,882,291	100.0000%	(2,882,291)	949,334	100.0000%	(949,334)	(3,831,625)	(764)
2018	October	3,320,668	607,073	3,927,740	2,974,959	100.0000%	(2,974,959)	939,189	100.0000%	(939,189)	(3,914,148)	13,592
2018	November	3,018,256	567,722	3,585,978	2,704,031	100.0000%	(2,704,031)	878,311	100.0000%	(878,311)	(3,582,342)	3,636
2018	December	1,556,215	412,079	1,968,295	1,394,201	100.0000%	(1,394,201)	637,519	100.0000%	(637,519)	(2,031,720)	(63,425)
		34,411,854	6,869,754	41,281,607	30,829,304		(30,829,304)	10,628,046		(10,628,046)	(41,457,350)	(175,743)

Note 1: Revenue source - CIM CRY4 reports

Note 2: Program & Carrying Costs allocated on a weighted average basis based on revenues collected.

		Cumulative (Over)/Under Recovery	Current Income Tax Rate	Monthly Deferred Income Tax	Cumulative Deferred Income Tax	Net Deferred After Tax Balance	Monthly Return	Monthly A/T Return on Deferral	YTD After Tax Interest	Gross up of Return to Pretax Rate	Gross up of Return to Pretax
		2018 tax rate					7.05%			0.768307	
							6.64%				
2018	January	(16,665)	23.5036%	(3,917)	(3,917)	(12,748)	0.005874	(37)	(37)	0.768307	(49)
2018	February	(26,547)	23.5036%	(2,322)	(6,239)	(20,307)	0.005874	(97)	(135)	0.768307	(175)
2018	March	(34,695)	23.5036%	(1,915)	(8,154)	(26,540)	0.005702	(134)	(268)	0.768307	(349)
2018	April	(52,676)	23.5036%	(4,226)	(12,381)	(40,295)	0.005529	(185)	(453)	0.768307	(589)
2018	May	(83,600)	23.5036%	(7,268)	(19,649)	(63,951)	0.005529	(288)	(741)	0.768307	(965)
2018	June	(104,477)	23.5036%	(4,907)	(24,556)	(79,921)	0.005529	(398)	(1,139)	0.768307	(1,482)
2018	July	(120,093)	23.5036%	(3,670)	(28,226)	(91,867)	0.005529	(475)	(1,614)	0.768307	(2,100)
2018	August	(128,781)	23.5036%	(2,042)	(30,268)	(98,513)	0.005529	(526)	(2,140)	0.768307	(2,785)
2018	September	(129,546)	23.5036%	(180)	(30,448)	(99,098)	0.005529	(546)	(2,686)	0.768307	(3,497)
2018	October	(115,954)	23.5036%	3,195	(27,253)	(88,700)	0.005529	(519)	(3,206)	0.768307	(4,172)
2018	November	(112,317)	23.5036%	855	(26,399)	(85,919)	0.005529	(483)	(3,688)	0.768307	(4,801)
2018	December	(175,743)	23.5036%	(14,907)	(41,306)	(134,437)	0.005529	(609)	(4,298)	0.768307	(5,594)
								(4,298)			(5,594)
		Twelve months return on 2018 Year End Balance				(134,437)		(9,477)			(12,334)
		Total return on Non-Residential EE programs									(17,928)

DEP is under-collected on program costs and undercollected in total, therefore the Company is calculating interest on the program cost piece of the balance.

Note: the monthly return was 7.05% from January until March 15, at which point the rate changed to 6.6351% after the new rate case order went into effect.

I/A

Duke Energy Progress
 Evans Exhibit 1
 Vintage 2016 True Up - January 1, 2016 to December 31, 2016
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H			
				-(A-B)*C	-(B-D)			-(D from page 2)			
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement**	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement**	NC Residential Adjusted Revenue Requirement	
Residential Programs											
EE Programs											
1 Appliance Recycling Program	27	206,569	\$ 76,177	\$ (137,009)	11.75%	\$ 25,049	\$ (111,960)	85.4384204%	E1 * F1	\$ (95,657)	\$ -
2 Energy Education Program for Schools	1,081	2,553,617	\$ 1,093,087	\$ 827,497	0.00%	\$ -	\$ 827,497	85.4384204%	E2 * F2	\$ 707,000	\$ -
3 Energy Efficient Lighting	6,086	41,649,479	\$ 33,998,827	\$ 15,552,184	11.75%	\$ 2,167,481	\$ 17,719,865	85.4384204%	E3 * F3	\$ 15,139,401	\$ -
4 Home Energy Improvement Program	1,904	6,289,383	\$ 6,961,888	\$ 6,013,170	11.75%	\$ 114,976	\$ 6,128,146	85.4384204%	E4 * F4	\$ 5,235,791	\$ -
5 Multi-Family	1,480	12,462,490	\$ 7,155,974	\$ 2,045,210	11.75%	\$ 600,508	\$ 2,645,727	85.4384204%	E5 * F5	\$ 2,240,468	\$ -
6 Neighborhood Energy Saver	304	1,992,091	\$ 1,167,680	\$ 2,052,535	0.00%	\$ -	\$ 2,052,535	85.4384204%	E6 * F6	\$ 1,753,654	\$ -
7 Residential Energy Assessments	716	5,942,895	\$ 4,853,362	\$ 1,412,934	11.75%	\$ 403,564	\$ 1,821,588	85.4384204%	E7 * F7	\$ 1,566,136	\$ (29,272)
8 Residential New Construction	4,819	9,954,835	\$ 12,780,066	\$ 9,405,615	11.75%	\$ 1,166,248	\$ 10,565,863	85.4384204%	E7 * F7	\$ 9,027,307	\$ 27,008
9 Save Energy and Water Kit	5,914	17,671,857	\$ 13,873,513	\$ 674,538	11.75%	\$ 1,550,880	\$ 2,225,418	85.4384204%	E8 * F8	\$ 1,901,362	\$ -
10 Residential Home Advantage			\$ -	\$ -	11.75%	\$ -	\$ -	85.4384204%		\$ -	\$ -
11 Total for Residential Conservation Programs	21,790	98,723,216	\$ 89,090,325	\$ 37,851,674		\$ 6,022,805	\$ 43,874,479			\$ 37,485,663	\$ (2,264)
12 My Home Energy Report	16,905	102,921,181	\$ 7,524,461	\$ 5,890,093	11.75%	\$ 192,038	\$ 6,082,131	85.4384204%	E11 * F11	\$ 5,196,477	\$ -
13 Total Residential Conservation and Behavioral Programs	38,695	201,644,397	\$ 96,614,785	\$ 43,741,767		\$ 6,214,843	\$ 49,956,610			\$ 42,682,139	\$ (2,265)
NC Residential Peak Demand Allocation Factor [2]											
14 EnergyWise	34,059		\$ 70,854,171	\$ 6,887,758	11.75%	\$ 7,516,054	\$ 14,403,811	86.1687719%	NC Allocation Factor [2]	\$ 6,220,487	\$ -
15 Total Residential	72,754	201,644,397	\$ 167,468,956	\$ 50,629,524		\$ 13,730,897	\$ 64,360,421	86.1687719%	86.1687719%	\$ 48,902,626	\$ (2,265)
Non-Residential Programs											
EE Programs											
15 Business Energy Report	740	4,546,814	\$ 309,365	\$ 69,516		\$ -	\$ 69,516	85.4384204%	E13 * F13	\$ 59,393	\$ -
16 Energy Efficiency for Business	10,291	71,154,719	\$ 47,824,935	\$ 14,159,310	11.75%	\$ 3,955,711	\$ 18,115,021	85.4384204%	E14 * F14	\$ 15,477,188	\$ -
17 Energy Efficient Lighting	2,818	12,180,303	\$ 10,880,259	\$ 1,889,694	11.75%	\$ 1,058,861	\$ 2,946,546	85.4384204%	E16 * F16	\$ 2,517,491	\$ -
18 Small Business Energy Saver	8,675	49,979,254	\$ 32,988,897	\$ 9,346,274	11.75%	\$ 2,279,183	\$ 12,115,457	85.4384204%	E17 * F17	\$ 10,351,255	\$ -
19 Total for Non-Residential Conservation Programs	22,434	137,861,130	\$ 92,007,456	\$ 25,454,794		\$ 7,291,755	\$ 31,246,550			\$ 28,605,327	\$ -
20 EnergyWise for Business	523	412,047	\$ 164,096	\$ 1,112,815	11.75%	\$ (111,404)	\$ 1,001,411	86.1687719%	E18 * F18	\$ 7,054,004	\$ -
21 Commercial, Industrial, & Governmental Demand Respon	(5,344)		\$ (10,684,733)	\$ -	11.75%	\$ -	\$ -	86.1687719%	E20 * F20	\$ -	\$ -
22 Total for Non-Residential DSM Programs	(4,821)	412,047	\$ (10,520,637)	\$ 1,112,815		\$ (111,404)	\$ 1,001,411	86.1687719%	NC Allocation Factor [2]	\$ 7,054,004	\$ -
23 Total Non-Residential	17,613	138,273,177	\$ 81,486,819	\$ 26,567,609		\$ 7,080,352	\$ 34,247,961	51.1954377%	51.1954377%	\$ 35,459,331	\$ -
24 Total All Programs	90,366	339,917,574	\$ 248,956,174	\$ 77,197,134		\$ 21,411,248	\$ 98,608,382			\$ 84,361,957	\$ (2,265)
(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages											
(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak											
24 DSDR	281,372	33,941,086		7,944,728		\$ -	\$ 7,944,728				
25 Total with DSDR	971,738	373,858,660	\$ 248,956,174	\$ 85,141,861		\$ 21,411,248	\$ 106,553,110			\$ 84,361,957	\$ (2,265)

Duke Energy Program
 Exhibit Exhibit 1
 Voltage 2016 True Up January 1, 2016 to December 31, 2016
 Docket Number E-2, Sub 1396
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	I	v2016 PPI True Up										Q							
										J	K	L	M	N	O	P	Q	R	S		T	U	V				
	MC Incentive	Income Tax Rate	Income Taxes	Net of Tax PPI Total NPV	Discount Rate	PPI Amortization Period	Voltage Year 2016	Year 1 PPI	Income Tax Gross-Up Factor	Adjusted PPI	Original Voltage 2016 PPI	PPI Over / (Under) Collection	Years of Original PPI Level	Cumulative PPI Over / (Under) Collection	Carrying Costs	PPI Over/(Under) Collection w/Carrot	1 Prior Period PPI	Voltage 2009 PPI	Voltage 2010 PPI	Voltage 2011 PPI	Voltage 2012 PPI	Voltage 2013 PPI	Voltage 2014 PPI	Voltage 2015 PPI	PPI Values for Test Period		
Residential Programs																											
EE Programs																											
1 Appliances Recycling Program	\$ 21,402	37.61%	\$ (8,049)	\$ 13,353	6.75%	10	\$ 1,879	62.99%	\$ 8,011	\$ 1,011	\$ -	1	\$ -	\$ -	\$ -	\$ 116,821	\$ -	\$ 28,547	\$ 20,192	\$ 18,647	\$ 17,038	\$ 7,505	\$ 4,102	\$ -	\$ -	\$ 119,833	
2 Energy Education Program for Schools	\$ 37,615	37.61%	\$ -	\$ 37,615	6.75%	N/A	\$ -	62.99%	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Energy Efficient Lighting	\$ 1,851,861	37.61%	\$ (696,482)	\$ 1,155,379	6.75%	5	\$ 276,812	62.99%	\$ 448,546	\$ 448,546	\$ -	1	\$ -	\$ -	\$ -	\$ 2,844,678	\$ -	\$ 444,426	\$ 209,670	\$ 211,054	\$ 416,817	\$ 287,824	\$ 112,048	\$ -	\$ -	\$ 1,291,264	
4 Home Energy Improvement Program	\$ 88,234	37.61%	\$ (36,566)	\$ 51,668	6.75%	10	\$ 6,624	62.99%	\$ 14,821	\$ 14,821	\$ -	1	\$ -	\$ -	\$ -	\$ 150,085	\$ 10,405	\$ 75,157	\$ 116,481	\$ 108,464	\$ -	\$ 15,647	\$ 24,334	\$ -	\$ -	\$ 363,911	
5 Multi-Family	\$ 513,064	37.61%	\$ (192,864)	\$ 320,200	6.75%	5	\$ 77,539	62.99%	\$ 124,282	\$ 124,282	\$ -	1	\$ -	\$ -	\$ -	\$ 393,329	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 393,329
6 Neighborhood Energy Saver	\$ -	37.61%	\$ -	\$ -	6.75%	N/A	\$ -	62.99%	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7 Residential Energy Assessments	\$ 344,884	37.61%	\$ (129,711)	\$ 215,173	6.75%	5	\$ 22,122	62.99%	\$ 43,543	\$ 56,121	\$ (23,922)	1	\$ (27,422)	\$ (1,850)	\$ (29,272)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,541
8 Residential New Construction	\$ 991,298	37.61%	\$ (372,828)	\$ 618,470	6.75%	10	\$ 87,228	62.99%	\$ 136,087	\$ 164,787	\$ 27,301	1	\$ 25,301	\$ 1,707	\$ 27,008	\$ 174,649	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,633	\$ 54,734	\$ 72,254	\$ -	\$ 324,135
9 Smart Energy and Water Kit	\$ 1,437,067	37.61%	\$ (548,352)	\$ 888,715	6.75%	5	\$ 200,251	62.99%	\$ 320,873	\$ 320,873	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,873
10 Residential Home Advantage	\$ -	37.61%	\$ -	\$ -	6.75%	10	\$ -	62.99%	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11 Total for Residential Conservation Programs	\$ 5,145,789		\$ (1,819,317)	\$ 3,326,472			\$ 707,317		\$ 1,131,704	\$ 1,131,704	\$ (2,171)		\$ (2,171)	\$ (143)	\$ (2,265)	\$ 1,854,042	\$ 18,424	\$ 677,879	\$ 526,684	\$ 629,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ -	\$ -	\$ 4,486,746	
12 My Home Energy Report	\$ 164,074	37.61%	\$ (61,709)	\$ 102,364	6.75%	1	\$ 102,364	62.99%	\$ 164,074	\$ 164,074	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 164,074
13 Total Residential Conservation and Behavioral Programs	\$ 5,309,864		\$ (1,881,026)	\$ 3,428,838			\$ 809,681		\$ 1,295,778	\$ 1,295,778	\$ (2,171)		\$ (2,171)	\$ (143)	\$ (2,265)	\$ 1,854,042	\$ 18,424	\$ 677,879	\$ 526,684	\$ 629,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ -	\$ -	\$ 4,650,820	
14 EnergyWise	\$ 6,476,491	37.61%	\$ (2,435,813)	\$ 4,040,678	6.75%	10	\$ 568,568	62.99%	\$ 911,115	\$ 911,115	\$ -	1	\$ -	\$ -	\$ -	\$ 3,243,881	\$ 135,141	\$ 1,048,048	\$ 781,456	\$ 847,958	\$ 801,884	\$ 869,321	\$ 265,878	\$ -	\$ -	\$ 4,155,197	
15 Total Residential	\$ 11,786,353		\$ (4,412,800)	\$ 7,373,553			\$ 1,478,251		\$ 2,209,092	\$ 2,209,092	\$ (2,171)		\$ (2,171)	\$ (143)	\$ (2,265)	\$ 7,099,925	\$ 153,564	\$ 1,720,927	\$ 1,408,140	\$ 1,177,778	\$ 1,003,450	\$ 844,237	\$ 891,633	\$ -	\$ -	\$ 6,309,037	
Non-Residential Programs																											
EE Programs																											
16 Business Energy Report	\$ -	37.61%	\$ -	\$ -	6.75%	1	\$ -	62.99%	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17 Energy Efficiency for Business	\$ 3,379,687	37.61%	\$ (1,271,107)	\$ 2,108,580	6.75%	3	\$ 790,753	62.99%	\$ 1,281,808	\$ 1,281,808	\$ -	1	\$ -	\$ -	\$ -	\$ 1,482,422	\$ 199,910	\$ 152,116	\$ 649,907	\$ 722,660	\$ 678,479	\$ 488,889	\$ 464,180	\$ -	\$ -	\$ 4,363,272	
18 Energy Efficient Lighting	\$ 902,866	37.61%	\$ (339,606)	\$ 563,260	6.75%	5	\$ 146,965	62.99%	\$ 218,792	\$ 218,792	\$ -	1	\$ -	\$ -	\$ -	\$ 801,120	\$ -	\$ 134,853	\$ 163,172	\$ 153,107	\$ 173,971	\$ 116,186	\$ 152,430	\$ -	\$ -	\$ 1,021,849	
19 Small Business Energy Saver	\$ 2,374,400	37.61%	\$ (893,048)	\$ 1,481,352	6.75%	5	\$ 343,285	62.99%	\$ 500,820	\$ 500,820	\$ -	1	\$ -	\$ -	\$ -	\$ 3,399,382	\$ -	\$ -	\$ -	\$ -	\$ 801,709	\$ 217,321	\$ 242,051	\$ -	\$ -	\$ 4,439,692	
20 Total for Non-Residential Conservation Programs	\$ 6,657,153		\$ (2,503,762)	\$ 4,153,391			\$ 1,438,113		\$ 2,401,209	\$ 2,401,209	\$ -		\$ -	\$ -	\$ 4,881,604	\$ 199,910	\$ 347,229	\$ 734,479	\$ 875,771	\$ 811,108	\$ 712,861	\$ 626,661	\$ -	\$ -	\$ 7,224,912		
21 EnergyWise for Business	\$ (95,993)	37.61%	\$ 36,104	\$ (59,889)	6.75%	1	\$ (59,889)	62.99%	\$ (102,471)	\$ (102,471)	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (102,471)
22 Commercial, Industrial, & Governmental Demand Resp	\$ (95,993)	37.61%	\$ -	\$ (95,993)	6.75%	3	\$ (95,993)	62.99%	\$ (102,471)	\$ (102,471)	\$ -	1	\$ -	\$ -	\$ -	\$ (102,471)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (102,471)
23 Total for Non-Residential DSM Programs	\$ (191,986)		\$ 36,104	\$ (166,885)			\$ (158,368)		\$ (204,942)	\$ (204,942)	\$ -		\$ -	\$ -	\$ (204,942)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (204,942)
24 Total Non-Residential	\$ 6,465,167		\$ (2,467,658)	\$ 3,997,509			\$ 1,279,745		\$ 2,196,117	\$ 2,196,117	\$ -		\$ -	\$ -	\$ 4,676,662	\$ 199,910	\$ 347,229	\$ 734,479	\$ 875,771	\$ 811,108	\$ 712,861	\$ 626,661	\$ -	\$ -	\$ 7,223,360		
25 Total All Programs	\$ 18,251,520		\$ (6,880,514)	\$ 11,371,006			\$ 2,757,996		\$ 4,405,209	\$ 4,405,209	\$ (2,171)		\$ (2,171)	\$ (143)	\$ (2,265)	\$ 12,016,587	\$ 353,474	\$ 2,378,879	\$ 2,056,273	\$ 2,081,861	\$ 1,844,321	\$ 1,441,770	\$ 1,658,708	\$ -	\$ -	\$ 16,562,118	

(1) Energy Efficiency Benchmarking impacts offset cumulative capacity at end of voltage year including impact for participants from prior voltages.

(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak.

Duke Energy Progress
 Evans Exhibit 1
 Vintage 2017 True Up - January 1, 2017 to December 31, 2017
 Docket Number F. 2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H			
				-(A-B)*C	-(B-D)			-(D from page 4)			
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement **	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement **	NC Residential Adjusted Revenue Requirement	
Residential Programs											
EE Programs											
1 Appliance Recycling Program			\$ 5,586	\$ 5,586	11.75%	\$ (656)	\$ 4,930	85.5082864%	E1 * F1	\$ 4,215	\$ -
2 Energy Education Program for Schools	996	2,351,765	\$ 1,376,442	\$ 835,991	0.00%	\$ -	\$ 835,991	85.5082864%	E2 * F2	\$ 714,841	\$ -
3 Energy Efficient Lighting	4,798	29,678,583	\$ 30,351,056	\$ 10,904,279	11.75%	\$ 2,284,996	\$ 13,189,275	85.5082864%	E3 * F3	\$ 11,277,023	\$ (26,349)
4 Home Energy Improvement Program	1,975	7,257,330	\$ 6,312,442	\$ 6,961,443	11.75%	\$ (76,147)	\$ 6,885,296	85.5082864%	E4 * F4	\$ 5,867,519	\$ 9
5 Multi-Family	2,052	16,150,639	\$ 10,163,052	\$ 2,514,413	11.75%	\$ 998,715	\$ 3,413,128	85.5082864%	E5 * F5	\$ 2,918,508	\$ 1,936
6 Neighborhood Energy Saver	335	2,200,240	\$ 1,117,743	\$ 1,781,211	0.00%	\$ -	\$ 1,781,211	85.5082864%	E6 * F6	\$ 1,523,083	\$ -
7 Residential Energy Assessments	913	7,734,231	\$ 5,512,365	\$ 1,863,486	11.75%	\$ 428,743	\$ 2,292,229	85.5082864%	E7 * F7	\$ 1,960,046	\$ (31,407)
8 Residential New Construction	5,266	12,245,876	\$ 21,481,837	\$ 11,671,724	11.75%	\$ 1,152,488	\$ 12,824,212	85.5082864%	E7 * F7	\$ 10,965,935	\$ 46,805
9 Save Energy and Water Kit	8,177	25,021,451	\$ 17,187,186	\$ 888,869	11.75%	\$ 1,915,052	\$ 2,803,923	85.5082864%	E8 * F8	\$ 2,397,585	\$ -
10 Residential Home Advantage			\$ -	\$ -	11.75%	\$ -	\$ -	85.5082864%		\$ -	\$ -
11 Total for Residential Conservation Programs	24,793	102,742,114	\$ 93,501,123	\$ 37,427,021		\$ 6,603,396	\$ 44,030,417			\$ 37,649,655	\$ (9,016)
12 My Home Energy Report	15,964	117,851,515	\$ 6,077,509	\$ 6,753,153	11.75%	\$ 25,774	\$ 6,778,928	85.5082864%	E11 * F11	\$ 5,795,445	\$ -
13 Total Residential Conservation and Behavioral Programs	44,696	220,593,629	\$ 100,478,632	\$ 44,180,174		\$ 6,629,171	\$ 50,809,345			\$ 43,446,200	\$ (9,016)
14 EnergyWise	33,428		\$ 56,895,706	\$ 6,502,032	11.75%	\$ 5,920,082	\$ 12,422,114	NC Residential Peak Demand Allocation Factor	NC Allocation Factor [2]	\$ 6,403,614	\$ 92,517
15 Total Residential	78,124	220,593,629	\$ 157,361,338	\$ 50,682,206		\$ 12,549,252	\$ 63,231,459	86.1579245%	48.2705209%	\$ 49,849,814	\$ 83,501
Non-Residential Programs											
EE Programs											
16 Business Energy Report			\$ 737	\$ 20,330		\$ -	\$ 20,330	85.5082864%	E19 * F19	\$ 17,384	\$ -
17 Energy Efficiency for Business	17,038	103,365,897	\$ 77,891,372	\$ 21,249,807	11.75%	\$ 6,596,638	\$ 28,346,441	85.5082864%	E18 * F18	\$ 24,238,556	\$ 43,892
18 Energy Efficient Lighting	2,024	7,872,565	\$ 9,198,437	\$ 1,324,943	11.75%	\$ 925,146	\$ 2,240,098	85.5082864%	E15 * F15	\$ 1,934,003	\$ (8)
19 Non-Res SmartSaver Performance	58	435,108	\$ 335,899	\$ 147,160	11.75%	\$ 22,177	\$ 145,337	85.5082864%	E17 * F17	\$ 144,797	\$ -
20 Small Business Energy Saver	8,500	45,011,098	\$ 26,945,514	\$ 8,720,755	11.75%	\$ 2,135,534	\$ 10,906,290	85.5082864%	E18 * F18	\$ 9,325,781	\$ 94,962
21 Total for Non-Residential Conservation Programs	27,620	156,684,668	\$ 114,371,959	\$ 32,012,999		\$ 9,679,480	\$ 41,692,475			\$ 35,650,521	\$ 138,845
22 EnergyWise for Business	2,887	983,712	\$ 858,655	\$ 1,900,549	11.75%	\$ (62,498)	\$ 1,938,052	86.1579245%	E19 * F19	\$ -	\$ -
23 Commercial, Industrial, & Governmental Demand Response	1,969		\$ 3,551,967	\$ 1,393,650	11.75%	\$ 253,602	\$ 1,647,252	86.1579245%	F20 * F20	\$ 6,862,482	\$ -
24 Total for Non-Residential DSM Programs	4,855	983,712	\$ 4,410,622	\$ 2,784,199		\$ 191,105	\$ 2,975,304	86.1579245%	NC Allocation Factor [2]	\$ 6,862,482	\$ -
25 Total Non-Residential	32,475	157,668,380	\$ 118,782,581	\$ 34,797,195		\$ 9,870,585	\$ 44,667,780		51.7294791%	\$ 42,513,003	\$ 138,845
26 Total All Programs	110,600	378,262,008	\$ 276,143,919	\$ 85,479,401		\$ 22,419,837	\$ 107,899,238			\$ 92,362,817	\$ 222,346
<small>(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages (2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak</small>											
24 DSDR	293,816	35,518,685	\$ -	\$ 11,146,179		\$ -	\$ 11,146,179			\$ -	\$ -
25 Total with DSDR	404,616	413,780,693	\$ 276,143,919	\$ 96,625,580		\$ 22,419,837	\$ 119,045,417			\$ 92,362,817	\$ 222,346

Duke Energy Programs
 From Exhibit 1
 Voltage 2017 From Up - January 1, 2017 to December 31, 2017
 Dollar Number: \$, Not 000s

Load Impacts and Estimated Revenue Requirements by Program

A	B	C	D	E	F	G	H	I	2017 PV From Up					P	Q																																		
									J	K	L	M	N			O																																	
MC Incentive	Voltage Tax Rate	Income Taxes	Net of Tax PV Total WY	Discount Rate	PV Amortization Period	Voltage Tax 2017 Year 1 PV	Income Tax Gross Up Factor	Original Voltage 2017 PV	PV Over / Under / Collection	Years at Original PV Level	Cumulative PV Over / Under / Collection	Over / Under / Collection / Cmpng Costs	P Price Period	Voltage 2009 PV	Voltage 2010 PV	Voltage 2011 PV	Voltage 2012 PV	Voltage 2013 PV	Voltage 2014 PV	Voltage 2015 PV	Voltage 2016 PV	PV Values for Test Period																											
																							Adjusted PV																										
Residential Programs																																																	
E.E. Programs																																																	
1	Appliance Recycling Program	\$	(261)	17.0%	\$	208	\$	(251)	8.76%	10	5	(245)	62.54%	\$	(78)	\$	176	\$	5	\$	\$	\$	\$	178,811	\$	3	28,547	\$	20,952	\$	18,647	\$	17,038	\$	7,305	\$	6,862	\$	5,011	\$	118,754								
2	Energy Education Program for Schools	\$	1,313,683	17.0%	\$	1,718,191	\$	1,229,761	8.76%	5	5	257,985	62.54%	\$	873,844	\$	488,763	\$	(24,881)	1	5	(24,881)	\$	11,680	\$	(24,881)	\$	146,425	\$	109,670	\$	821,954	\$	638,817	\$	397,875	\$	152,148	\$	688,586	\$	1,764,708							
3	Energy Efficient Lighting	\$	105,106	17.0%	\$	141,139	\$	100,290	8.76%	100	5	(5,769)	62.54%	\$	19,160	\$	19,160	\$	0	1	5	0	0	0	0	0	362,911	\$	10,405	\$	75,957	\$	190,481	\$	108,964	\$	0	0	16,647	\$	24,314	\$	1,821	\$	104,945				
4	Home Energy Improvement Program	\$	768,476	17.0%	\$	1,044,791	\$	483,679	8.76%	5	5	117,201	62.54%	\$	189,211	\$	188,515	\$	1,804	1	5	1,804	\$	1,804	\$	1,804	\$	37,651	\$	0	\$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5	Multi-Family	\$	37,026	17.0%	\$	49,367	\$	35,765	8.76%	5	5	11,201	62.54%	\$	18,211	\$	18,211	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	Neighborhood Energy Loans	\$	166,411	17.0%	\$	221,862	\$	160,765	8.76%	5	5	10,912	62.54%	\$	89,834	\$	19,415	\$	(26,418)	1	5	(26,418)	\$	17,416	\$	(26,418)	\$	191,407	\$	43,543	\$	0	\$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Residential Energy Assessments	\$	385,644	17.0%	\$	511,561	\$	370,364	8.76%	10	5	87,480	62.54%	\$	138,767	\$	182,409	\$	43,842	1	5	43,842	\$	2,843	\$	46,805	\$	314,155	\$	0	\$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	Residential New Construction	\$	1,871,518	17.0%	\$	2,500,840	\$	1,830,847	8.76%	5	5	249,741	62.54%	\$	396,792	\$	396,792	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	State Energy and Green Reb	\$	1,871,518	17.0%	\$	2,500,840	\$	1,830,847	8.76%	10	5	249,741	62.54%	\$	396,792	\$	396,792	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residential Home Advantage	\$	5,846,451	17.0%	\$	7,821,570	\$	5,553,877	8.76%	10	5	802,361	62.54%	\$	1,274,891	\$	1,284,957	\$	(10,466)	1	5	(10,466)	\$	18,880	\$	(10,466)	\$	179,476	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	
11	Total for Residential Conservation Programs	\$	22,078	17.0%	\$	29,186	\$	21,871	8.76%	1	5	13,871	62.54%	\$	22,039	\$	22,039	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
12	My Home Energy Report	\$	1,688,490	17.0%	\$	2,250,742	\$	1,647,749	8.76%	1	5	1,290,842	62.54%	\$	1,290,842	\$	1,290,842	\$	(10,466)	1	5	(10,466)	\$	25,711	\$	(10,466)	\$	4,989,746	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	
13	Total Residential Conservation and Behavioral Programs	\$	1,688,490	17.0%	\$	2,250,742	\$	1,647,749	8.76%	1	5	1,290,842	62.54%	\$	1,290,842	\$	1,290,842	\$	(10,466)	1	5	(10,466)	\$	25,711	\$	(10,466)	\$	4,989,746	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	\$	18,821	\$	177,679	
14	EnergyEffix	\$	11,800,000	17.0%	\$	15,800,000	\$	11,800,000	8.76%	10	5	851,877	62.54%	\$	718,108	\$	804,768	\$	80,661	1	5	80,661	\$	1,836	\$	81,517	\$	4,155,197	\$	115,191	\$	1,083,088	\$	781,456	\$	347,909	\$	881,188	\$	389,522	\$	285,373	\$	811,214	\$	6,811,305			
15	Total Residential	\$	13,768,110	17.0%	\$	18,491,512	\$	13,738,219	8.76%	10	5	1,268,210	62.54%	\$	1,014,950	\$	1,109,165	\$	94,215	1	5	94,215	\$	1,841	\$	95,301	\$	5,144,943	\$	115,344	\$	1,170,927	\$	1,108,140	\$	1,171,793	\$	1,083,450	\$	844,517	\$	691,851	\$	2,045,018	\$	11,781,892			
Non-Residential Programs																																																	
E.E. Programs																																																	
16	Business Energy Report	\$	5,840,669	17.0%	\$	7,821,570	\$	5,553,877	8.76%	1	5	1,848,848	62.54%	\$	2,119,968	\$	2,187,998	\$	41,114	1	5	41,114	\$	2,778	\$	41,262	\$	4,762,772	\$	189,310	\$	452,378	\$	646,901	\$	722,666	\$	478,474	\$	688,880	\$	669,190	\$	1,281,869	\$	4,901,157			
17	Energy Efficient Lighting	\$	791,088	17.0%	\$	1,054,779	\$	797,808	8.76%	5	5	120,647	62.54%	\$	191,685	\$	191,627	\$	58	1	5	58	\$	58	\$	58	\$	1,021,849	\$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
18	Non-Residential Performance	\$	18,811	17.0%	\$	25,288	\$	18,291	8.76%	1	5	4,249	62.54%	\$	7,184	\$	7,184	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
19	Small Business Energy Loan	\$	1,426,028	17.0%	\$	1,907,731	\$	1,400,221	8.76%	5	5	4,201	62.54%	\$	652,741	\$	781,698	\$	128,957	1	5	128,957	\$	88,951	\$	64,862	\$	1,439,682	\$	0	\$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
20	Total for Non-Residential Conservation Programs	\$	8,276,714	17.0%	\$	11,009,466	\$	8,209,982	8.76%	1	5	1,968,014	62.54%	\$	2,321,511	\$	2,381,508	\$	160,004	1	5	160,004	\$	1,878,066	\$	1,878,066	\$	7,224,812	\$	189,910	\$	487,228	\$	728,676	\$	871,771	\$	911,159	\$	772,884	\$	762,801	\$	2,001,229	\$	10,238,524			
21	EnergyEffix for Business	\$	113,841	17.0%	\$	151,956	\$	113,841	8.76%	1	5	198,181	62.54%	\$	117,480	\$	117,480	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
22	Commercial, Industrial, & Governmental Demand Response	\$	218,088	17.0%	\$	291,471	\$	218,088	8.76%	1	5	32,172	62.54%	\$	42,891	\$	42,891	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
23	Total for Non-Residential DSM Programs	\$	184,932	17.0%	\$	246,205	\$	184,932	8.76%	1	5	15,990	62.54%	\$	21,568	\$	21,568	\$	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
24	Total Non-Residential	\$	9,461,412	17.0%	\$	12,507,127	\$	9,415,224	8.76%	1	5	2,182,014	62.54%	\$	2,571,911	\$	2,583,076	\$	160,004	1	5	160,004	\$	1,897,072	\$	1,897,072	\$	7,417,224	\$	189,910	\$	487,228	\$	728,676	\$	871,771	\$	911,159	\$	772,884	\$	762,801	\$	2,001,229	\$	10,238,524			
25	Total All Programs	\$	23,234,522	17.0%	\$	30,998,639	\$	23,153,443	8.76%	10	5	1,450,224	62.54%	\$	1,016,861	\$	1,392,241	\$	104,219	1	5	104,219	\$	1,849	\$	106,818	\$	9,589,187	\$	205,254	\$	1,898,147	\$	1,898,147	\$	1,898,147	\$	1,898,147	\$	1,898,147	\$	1,898,147	\$	1,898,147	\$	1,898,147			

1) EnergyEffix PVs are based on the 100% load factor and are based on the 100% load factor. The 100% load factor is based on the 100% load factor. The 100% load factor is based on the 100% load factor.

Duke Energy Progress
 Evans Exhibit 1
 Vintage 2018 True Up - January 1, 2018 to December 31, 2018
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H						
				=(A-B)*C	=(B+D)			=(E-From page 6)						
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement ⁽¹⁾	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement ⁽²⁾	NC Residential Adjusted Revenue Requirement				
Residential Programs														
EE Programs														
1	Appliance Recycling Program		\$	\$	11.75%	\$	\$	85.5608674%	E1 * F1	\$	\$	119,754		
2	Energy Education Program for Schools	766	2,563,019	\$ 1,365,918	\$ 676,815	0.00%	\$	85.5608674%	E2 * F2	\$	\$	579,089		
3	Energy Efficient Lighting	4,227	25,642,842	\$ 25,055,843	\$ 8,752,062	11.75%	\$ 1,915,694	\$ 10,667,756	85.5608674%	E3 * F3	\$	\$	4,163,487	
4	Residential Service - Smart Saver	1,805	7,228,648	\$ 6,188,886	\$ 7,168,833	11.75%	\$ (115,144)	\$ 7,053,689	85.5608674%	E4 * F4	\$	\$	340,898	
5	Multi-Family	1,744	13,791,652	\$ 8,052,883	\$ 2,409,743	11.75%	\$ 683,904	\$ 3,072,817	85.5608674%	E5 * F5	\$	\$	615,984	
6	Multi-Family PipeWrap EMV Adjustment						\$ (103,989)	\$ (103,989)	100.0000000%	E6 * F6	\$	\$	(103,989)	
7	Neighborhood Energy Saver	347	2,278,804	\$ 1,226,687	\$ 1,845,739	0.00%	\$	\$ 1,845,739	85.5608674%	E7 * F7	\$	\$	1,579,230	
8	Residential Energy Assessments	935	7,751,895	\$ 5,270,526	\$ 1,851,965	11.75%	\$ 401,681	\$ 2,251,646	85.5608674%	E8 * F8	\$	\$	255,573	
9	Residential New Construction	5,440	14,263,235	\$ 22,380,550	\$ 13,189,949	11.75%	\$ 1,079,896	\$ 14,269,845	85.5608674%	E9 * F9	\$	\$	582,765	
10	Sew Energy and Water Kit	5,058	15,252,311	\$ 10,031,447	\$ 825,279	11.75%	\$ 1,081,960	\$ 1,907,239	85.5608674%	E10 * F10	\$	\$	941,861	
11	Residential Home Advantage			\$	\$	11.75%	\$	\$	85.5608674%	E11 * F11	\$	\$	126,476	
12	Total for Residential Conservation Programs	20,322	88,272,404	\$ 79,574,741	\$ 6,720,384		\$ 4,923,167	\$ 41,643,550			\$	\$	35,615,569	
13	My Home Energy Report	20,776	122,685,145	\$ 7,055,417	\$ 7,687,891	11.75%	\$ (74,316)	\$ 7,613,575	85.5608674%	E13 * F13	\$	\$	(63,585)	
14	Total Residential Conservation and Behavioral Programs	41,098	210,957,549	\$ 86,630,158	\$ 44,408,274		\$ 4,848,851	\$ 49,257,126			\$	\$	7,133,214	
15	EnergyWise	29,483		\$ 57,437,080	\$ 5,664,027	11.75%	\$ 6,083,334	\$ 11,747,361	NC Residential Peak Demand Allocation Factor [2]	86.5304240%	NC Allocation Factor [2]	\$	\$	6,416,092
16	Total Residential	70,580	210,957,549	\$ 144,067,239	\$ 90,072,301		\$ 10,932,185	\$ 61,004,486			\$	\$	48,545,902	
											\$	\$	5,613,145	
											\$	\$	12,746,359	
Non-Residential Programs														
EE Programs														
17	Business Energy Report			\$	\$			85.5608674%	I17 * F17	\$	\$			
18	Energy Efficient Lighting	1,752	6,759,940	\$ 8,081,346	\$ 1,061,434	11.75%	\$ 824,840	\$ 1,888,274	85.5608674%	I18 * F18	\$	\$	1,384,376	
19	Non-Residential Smart Saver Prescriptive	14,782	85,112,310	\$ 64,170,924	\$ 11,515,913	11.75%	\$ 6,186,964	\$ 17,702,877	85.5608674%	I19 * F19	\$	\$	8,910,038	
20	Non-Residential Smart Saver Custom	1,881	11,901,442	\$ 8,744,334	\$ 2,174,163	11.75%	\$ 771,951	\$ 2,946,158	85.5608674%	I20 * F20	\$	\$	250,414	
21	Non-Res SmartSaver Performance	129	1,519,317	\$ 794,816	\$ 201,559	11.75%	\$ 69,708	\$ 271,267	85.5608674%	I21 * F21	\$	\$	29,805	
22	Small Business Energy Saver	6,667	40,298,466	\$ 21,929,237	\$ 8,858,213	11.75%	\$ 1,335,845	\$ 10,394,058	85.5608674%	I22 * F22	\$	\$	2,630,625	
23	Total for Non-Residential Conservation Programs	25,213	145,591,275	\$ 103,722,657	\$ 23,813,283		\$ 9,389,351	\$ 33,202,634			\$	\$	13,205,257	
24	EnergyWise for Business	2,661	38,158	\$ 887,204	\$ 2,108,030	11.75%	\$ (143,447)	\$ 1,964,583	86.5304240%	I24 * F24	\$	\$	(124,125)	
25	Commercial, Industrial, & Governmental Demand Response	1,629		\$ 2,879,351	\$ 1,373,929	11.75%	\$ 176,887	\$ 1,550,816	86.5304240%	I25 * F25	\$	\$	295,274	
26	Total for Non-Residential DSM Programs	4,290	38,158	\$ 3,766,555	\$ 3,481,959		\$ 33,440	\$ 3,515,399	86.5304240%	NC Allocation Factor [2]	\$	\$	6,790,838	
27	Total Non-Residential	29,503	145,629,433	\$ 107,489,212	\$ 27,295,242		\$ 9,422,791	\$ 36,718,033	51.4187470%		\$	\$	35,199,299	
28	Total All Programs	100,083	356,586,982	\$ 251,556,450	\$ 77,367,543		\$ 20,354,977	\$ 97,722,520			\$	\$	83,745,202	
<p>(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages</p> <p>(2) Total System DSM Programs allocated to Residential and Non-Residential based on contribution to retail system peak</p> <p>(3) Multi-Family PipeWrap EMV Adjustment includes (\$196,164) applied to line 5 as part of EMV application to the 2018 vintage year, of which (\$43,806) is Lost Revenue and (\$152,357) is incentive. The remaining (\$103,989) is reflected in line 6 for a total of (\$300,153)</p>														
24	DSDR	275,885	44,989,144	\$	\$ 12,886,517			\$ 12,886,517			\$	\$		
25	Total with DSDR	375,968	401,576,126	\$ 251,556,450	\$ 90,254,060		\$ 20,354,977	\$ 110,609,036			\$	\$	26,119,360	

Duke Energy Progress
Event Exhibit 1
Vintage 2018 True Up - January 1, 2018 to December 31, 2018
Docket Number E-2, Sub 1206
Load Impact and Estimated Revenue Requirements by Program

A	B	C	D	E	F	G	H	I	J	K											
											-ATE	-ALC	= PMTE / J, 00	+1-B							
NC Incentive	Income Tax Rate	Income Taxes	Net-of-Tax PPI - Total NPV	Discount Rate	PPI Amortization Period	Vintage Year 2018 - Year 1 PPI	Income Tax Gross-Up Factor	Adjusted PPI	3 Prior Period PPI	Vintage 2009 PPI	Vintage 2010 PPI	Vintage 2011 PPI	Vintage 2012 PPI	Vintage 2013 PPI	Vintage 2014 PPI	Vintage 2015 PPI	Vintage 2016 PPI	Vintage 2017 PPI	PPI Values for Test Period		
Residential Programs																					
EE Programs																					
1 Appliance Recycling Program	\$ -	23.50%	\$ -	\$ -	6.72%	10	\$ -	76.50%	\$ -	\$ 118,754	\$ -	\$ 28,547	\$ 20,592	\$ 38,647	\$ 17,038	\$ 2,505	\$ 4,492	\$ 3,011	\$ (79)	\$ 119,754	
2 Energy Education Program for Schools	\$ -	23.50%	\$ -	\$ -	6.72%	N/A	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
3 Energy Efficient Lighting	\$ 1,639,085	23.50%	\$ (385,244)	\$ 1,253,840	6.72%	5	\$ 303,522	76.50%	\$ 396,779	\$ 3,766,708	\$ 10,405	\$ 946,425	\$ 359,670	\$ 621,854	\$ 636,857	\$ 397,825	\$ 332,048	\$ 448,586	\$ 473,444	\$ 4,363,487	
4 Residential Service - Smart Saver	\$ 986,532	23.50%	\$ 22,555	\$ (1,010,303)	6.72%	10	\$ (102,942)	76.50%	\$ (13,843)	\$ 354,745	\$ -	\$ 75,357	\$ 116,481	\$ 108,864	\$ -	\$ 14,647	\$ 26,334	\$ 14,823	\$ 19,166	\$ 940,898	
5 Multi-Family (with Pipe/Trap LMV Adjustment)	\$ 463,339	23.50%	\$ (108,901)	\$ 354,437	6.72%	5	\$ 85,800	76.50%	\$ 112,142	\$ 903,822	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 183,329	\$ 124,282	\$ 186,211	\$ 613,884
6 Neighborhood Energy Saver	\$ -	23.50%	\$ -	\$ -	6.72%	N/A	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
7 Residential Energy Assessments	\$ 343,682	23.50%	\$ (80,798)	\$ 262,884	6.72%	5	\$ 83,642	76.50%	\$ 83,190	\$ 172,377	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,343	\$ 88,834	\$ 253,573	
8 Residential New Construction	\$ 923,968	23.50%	\$ (217,166)	\$ 706,802	6.72%	10	\$ 99,840	76.50%	\$ 129,863	\$ 452,902	\$ -	\$ -	\$ -	\$ -	\$ 47,653	\$ 54,738	\$ 72,258	\$ 139,687	\$ 136,767	\$ 582,265	
9 Save Energy and Water Kit	\$ 925,134	23.50%	\$ (217,581)	\$ 707,553	6.72%	5	\$ 171,425	76.50%	\$ 224,096	\$ 711,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,973	\$ 396,792	\$ 941,861	
10 Residential Home Advantage	\$ -	23.50%	\$ -	\$ -	6.72%	10	\$ -	76.50%	\$ -	\$ 176,476	\$ 8,014	\$ 27,550	\$ 79,940	\$ 60,450	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 176,476	
11 Total for Residential Conservation Programs	\$ 4,197,289		\$ (986,315)	\$ 3,210,974			\$ 713,137		\$ 932,250	\$ 6,244,549	\$ 18,424	\$ 877,879	\$ 526,684	\$ 829,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ 1,133,704	\$ 1,274,803	\$ 7,196,799	
12 My Home Energy Report	\$ (63,585)	23.50%	\$ (14,945)	\$ (48,640)	6.72%	1	\$ (48,640)	76.50%	\$ (63,585)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (63,585)	
13 Total Residential Conservation and Behavioral Programs	\$ 4,133,704		\$ (1,001,260)	\$ 3,132,444			\$ 464,497		\$ 868,665	\$ 6,266,549	\$ 18,424	\$ 877,879	\$ 526,684	\$ 829,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ 1,133,704	\$ 1,274,803	\$ 7,133,214	
14 EnergyWise	\$ 5,263,933	23.50%	\$ (1,237,215)	\$ 4,026,719	6.72%	10	\$ 565,952	76.50%	\$ 739,841	\$ 4,871,305	\$ 135,741	\$ 1,043,048	\$ 781,456	\$ 347,859	\$ 301,384	\$ 369,322	\$ 263,373	\$ 911,314	\$ 718,108	\$ 6,611,141	
15 Total Residential	\$ 9,397,639		\$ (2,208,785)	\$ 7,188,853			\$ 1,230,449		\$ 1,608,506	\$ 11,137,853	\$ 153,564	\$ 1,720,927	\$ 1,308,140	\$ 1,177,773	\$ 1,029,450	\$ 844,237	\$ 891,833	\$ 2,045,018	\$ 1,992,911	\$ 12,746,939	
Non-Residential Programs																					
EE Programs																					
16 Business Energy Report	\$ -	23.50%	\$ -	\$ -	6.72%	1	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
17 Energy Efficient Lighting	\$ 705,740	23.50%	\$ (165,874)	\$ 539,866	6.72%	5	\$ 130,687	76.50%	\$ 170,841	\$ 1,213,534	\$ -	\$ 134,853	\$ 74,572	\$ 153,107	\$ 171,971	\$ 116,186	\$ 152,430	\$ 218,710	\$ 191,683	\$ 1,384,376	
18 Non-Residential Smart Saver Prescriptive	\$ 5,293,620	23.50%	\$ (1,244,192)	\$ 4,049,428	6.72%	1	\$ 1,535,191	76.50%	\$ 2,006,881	\$ 4,903,157	\$ 169,910	\$ 452,176	\$ 649,907	\$ 722,846	\$ 678,479	\$ 438,885	\$ 369,180	\$ 1,281,865	\$ 2,119,886	\$ 8,101,038	
19 Non-Residential Smart Saver Custom	\$ 665,524	23.50%	\$ (155,247)	\$ 510,278	6.72%	1	\$ 191,538	76.50%	\$ 250,414	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 250,414	
20 Non-Res. SmartSaver Performance	\$ 95,643	23.50%	\$ (22,414)	\$ 73,229	6.72%	1	\$ 17,297	76.50%	\$ 22,811	\$ 1,144	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,144	
21 Small Business Energy Saver	\$ 1,114,081	21.50%	\$ (238,871)	\$ 875,210	6.72%	1	\$ 381,294	76.50%	\$ 498,186	\$ 2,132,439	\$ -	\$ -	\$ -	\$ 80,709	\$ 217,323	\$ 241,051	\$ 900,679	\$ 692,147	\$ 2,830,625		
22 Total for Non-Residential Conservation Programs	\$ 8,033,611		\$ (1,888,189)	\$ 6,145,421			\$ 2,255,827		\$ 2,948,934	\$ 10,256,424	\$ 169,910	\$ 587,229	\$ 724,479	\$ 875,773	\$ 931,159	\$ 772,396	\$ 762,661	\$ 2,401,209	\$ 3,031,512	\$ 13,025,217	
23 EnergyWise for Business	\$ (124,125)	23.50%	\$ (29,174)	\$ (94,951)	6.72%	1	\$ (94,951)	76.50%	\$ (124,125)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (124,125)	
24 Commercial, Industrial, & Governmental Demand Response	\$ (53,081)	23.50%	\$ (12,575)	\$ (40,506)	6.72%	1	\$ (40,506)	76.50%	\$ (53,081)	\$ 233,850	\$ 65,722	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,614	\$ -	\$ -	\$ 82,891	\$ 291,878	
25 Total for Non-Residential DSM Programs	\$ 28,936		\$ (8,801)	\$ 20,135			\$ (50,542)		\$ (86,098)	\$ 233,850	\$ 65,722	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,614	\$ -	\$ -	\$ 82,891	\$ 167,753	
26 Total Non-Residential	\$ 8,062,546		\$ (1,896,990)	\$ 6,165,556			\$ 2,205,285		\$ 2,862,835	\$ 10,490,174	\$ 169,910	\$ 652,901	\$ 752,114	\$ 904,088	\$ 940,873	\$ 797,531	\$ 767,075	\$ 2,401,209	\$ 3,114,403	\$ 13,192,970	
27 Total All Programs	\$ 17,460,185		\$ (4,005,775)	\$ 13,454,409			\$ 3,435,733		\$ 4,471,341	\$ 21,628,027	\$ 323,474	\$ 2,378,838	\$ 2,050,273	\$ 2,081,861	\$ 1,844,427	\$ 1,641,770	\$ 1,658,300	\$ 4,446,927	\$ 5,107,311	\$ 26,119,969	

(1) Energy Efficient benchmarking impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages.
(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to total system peak.

**Duke Energy Progress
Evans Exhibit 1
Vintage 2020 Estimate - January 1, 2020 to December 31, 2020
Docket No. E-2, Sub 1206
Load Impacts and Estimated Revenue Requirements by Program**

	A	B	C	D	E	F	G	H	I			
				-(A-B)*C	-(B+D)				*(K (from page 8))			
	System kW Reduction - Summer Peak	System Energy Reduction (KWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement **	NC Retail kWh Sales Allocation Factor	NC Allocation Factor (2)	NC Residential Unadjusted Revenue Requirement **	NC Residential Adjusted Revenue Requirement	
Residential Programs												
EE Programs												
1 Appliances and Devices	7,822	23,787,507	11,327,506	987,767	11.75%	\$ 1,449,920	\$ 2,437,687	85.560874%		E1 * F1	\$ 2,085,702	\$ 299,664
2 Appliance Recycling Program					11.75%	\$ -	\$ -	85.560874%		E2 * F2	\$ -	\$ 91,207
3 Energy Education Program for Schools	462	3,877,957	1,213,998	969,044	0.00%	\$ -	\$ 969,044	85.560874%		E3 * F3	\$ 829,122	\$ -
4 Energy Efficient Lighting	1,480	8,977,956	7,302,951	4,558,139	11.75%	\$ 327,515	\$ 4,880,655	85.560874%		E4 * F4	\$ 4,175,930	\$ 3,881,545
5 Residential Smart Saver	1,971	5,634,699	5,047,920	3,404,576	11.75%	\$ 193,093	\$ 3,597,668	85.560874%		E5 * F5	\$ 3,078,196	\$ 270,425
6 Multi Family	1,847	14,538,633	7,175,347	2,923,891	11.75%	\$ 499,546	\$ 3,423,437	85.560874%		E6 * F6	\$ 2,929,122	\$ 840,986
7 Neighborhood Energy Saver	348	2,279,725	933,647	2,042,781	0.00%	\$ -	\$ 2,042,781	85.560874%		E7 * F7	\$ 1,747,394	\$ -
8 Residential Energy Assessments	820	6,866,573	3,860,896	1,932,255	11.75%	\$ 236,415	\$ 2,158,870	85.560874%		E8 * F8	\$ 1,847,148	\$ 314,978
9 Residential New Construction	4,606	15,992,111	18,677,081	13,018,377	11.75%	\$ 664,898	\$ 13,683,275	85.560874%		E9 * F9	\$ 11,707,529	\$ 814,307
10 Save Energy and Water Kit					11.75%	\$ -	\$ -	85.560874%		E10 * F10	\$ -	\$ 1,340,230
11 Residential Home Advantage					11.75%	\$ -	\$ -	85.560874%		E11 * F11	\$ -	\$ 140,907
12 Total for Residential Conservation Programs	19,456	81,950,160	57,539,341	29,836,325		3,356,587	13,192,912				\$ 28,400,143	\$ 7,994,251
13 My Home Energy Report (1)	15,586	110,045,885	6,414,420	6,866,458	11.75%	\$ (53,156)	\$ 6,813,701	85.560874%		E12 * F12	\$ 5,829,861	\$ (45,480)
14 Total Residential Conservation and Behavioral P	39,042	197,996,045	\$ 63,953,811	\$ 36,703,184		\$ 3,303,432	\$ 40,006,615				\$ 34,230,006	\$ 7,948,770
NC Residential Peak Demand Allocation Factor												
15 EnergyWise * Home	27,629		42,915,886	8,148,740	11.75%	\$ 4,085,140	\$ 12,233,879	86.5304240%	48.58%	(E13-(E3))*F13 *G13	\$ 9,253,543	\$ 5,547,314
16 Total Residential	66,671	197,996,045	\$ 106,869,697	\$ 44,851,923		\$ 7,388,571	\$ 52,240,495				\$ 43,883,547	\$ 13,496,084
Non-Residential Programs												
EE Programs												
17 Energy Efficient Lighting	611	2,357,624	2,211,608	552,455	11.75%	\$ 194,950	\$ 747,406	85.560874%		E15 * F15	\$ 639,487	\$ 1,406,771
18 Non-Residential Smart Saver Performance (Cust)	7,406	21,077,008	10,348,052	4,302,434	11.75%	\$ 710,340	\$ 5,012,794	85.560874%		E16 * F16	\$ 4,288,990	\$ 616,192
19 Non-Residential Smart Saver Performance (Pies)	10,443	43,750,610	38,000,115	11,355,357	11.75%	\$ 3,130,759	\$ 14,486,116	85.560874%		E17 * F17	\$ 12,394,447	\$ 6,434,521
20 Non-Residential Smart Saver Performance (Incn)	858	7,520,191	3,400,143	991,707	11.75%	\$ 317,307	\$ 1,309,004	85.560874%		E18 * F18	\$ 1,119,995	\$ 206,633
21 Small Business Energy Saver	6,642	38,401,907	19,156,040	8,304,027	11.75%	\$ 1,275,112	\$ 8,579,189	85.560874%		E19 * F19	\$ 8,195,994	\$ 1,948,676
22 Total for Non-Residential Conservation Program	20,961	113,107,341	\$ 73,407,958	\$ 25,505,975		\$ 5,628,483	\$ 31,134,458				\$ 26,638,513	\$ 10,616,991
NC Non-Residential Peak Demand Allocation Factor												
23 EnergyWise * for Business	8,252	54,636	806,038	1,315,403	11.75%	\$ (792,340)	\$ 3,022,903				\$ 3,027,645	\$ (269,912)
24 Commercial Industrial Governmental Demand R	7,357		11,315,319	6,148,093	11.75%	\$ 607,079	\$ 6,755,773				\$ 6,766,370	\$ 591,203
25 Total for Non-Residential DSM Programs	15,609	54,636	\$ 12,141,357	\$ 9,464,095		\$ 314,578	\$ 9,778,676	86.5304240%	51.42%	(E23-(E23))*F23 *G23	\$ 9,794,014	\$ 321,291
26 Total Non-Residential	36,570	133,161,976	\$ 85,549,315	\$ 34,970,071		\$ 5,943,061	\$ 40,913,132				\$ 36,432,927	\$ 10,938,282
27 Total All Programs	103,240	331,158,021	\$ 192,419,017	\$ 79,821,994		\$ 13,331,633	\$ 93,153,627				\$ 79,916,475	\$ 24,434,366
DSDR												
1 DSDR	293,836	46,476,232		\$ 18,774,903	N/A	\$ -	\$ 18,774,903				\$ -	\$ -
Total All Programs with DSDR	397,076	377,634,253	\$ 192,419,017	\$ 98,596,897		\$ 13,331,633	\$ 111,928,530				\$ 79,916,475	\$ 24,434,366

(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages
(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak

Duke Energy Progress
 Evans Exhibit 1
 Vintage 2020 Estimate - January 1, 2020 to December 31, 2020
 Document No. G-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	I	J	K												
			-A*B	-A*C			=(F*(E,F,D))	-I*B			=(H)												
	NC Incentive	Income Tax Rate	Income Taxes	Net of Tax PPI - Total NPV	Discount Rate	PPI Amortization Period	Vintage Year 1 PPI	Income Tax Gross Up Factor	Adjusted PPI	I Prior Period PPI	Vintage 2009 PPI	Vintage 2010 PPI	Vintage 2011 PPI	Vintage 2012 PPI	Vintage 2013 PPI	Vintage 2014 PPI	Vintage 2015 PPI	Vintage 2016 PPI	Vintage 2017 PPI	Vintage 2018 PPI	Vintage 2019 PPI	PPI Values for Test Period	
Residential Programs																							
EE Programs																							
1 Appliances and Devices	\$ 1,240,564	23.17%	\$ (287,430)	\$ 953,134	6.64%	5	\$ 230,234	76.83%	\$ 299,664	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 299,664	
2 Appliance Recycling Program	\$	23.17%	\$	\$	6.64%	10	\$	76.83%	\$	\$ 91,207	\$	\$	\$ 20,592	\$ 38,647	\$ 17,038	\$ 7,500	\$ 4,492	\$ 3,011	\$ (79)	\$	\$	\$	\$ 91,207
3 Energy Education Program for Schools	\$	23.17%	\$	\$	6.64%	N/A	\$	76.83%	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
4 Energy Efficient Lighting	\$ 275,947	23.17%	\$ (63,935)	\$ 212,012	6.64%	5	\$ 51,213	76.83%	\$ 66,656	\$ 3,814,899	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
5 Home Energy Improvement	\$ 165,212	23.17%	\$ (38,278)	\$ 126,934	6.64%	10	\$ 17,774	76.83%	\$ 23,131	\$ 212,293	\$	\$	\$ 309,670	\$ 621,854	\$ 636,857	\$ 393,825	\$ 332,048	\$ 448,596	\$ 473,464	\$ 396,779	\$ 197,827	\$	\$ 1,881,545
6 Multi-Family	\$ 427,436	23.17%	\$ (99,029)	\$ 328,407	6.64%	5	\$ 79,323	76.83%	\$ 103,244	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
7 Neighborhood Energy Saver	\$	23.17%	\$	\$	6.64%	N/A	\$	76.83%	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
8 Residential Energy Assessments	\$ 193,896	23.17%	\$ (44,924)	\$ 148,972	6.64%	5	\$ 35,984	76.83%	\$ 46,836	\$ 268,142	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
9 Residential New Construction	\$ 568,892	23.17%	\$ (131,808)	\$ 437,084	6.64%	10	\$ 61,204	76.83%	\$ 79,861	\$ 738,646	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
10 Save Energy and Water Kit	\$	23.17%	\$	\$	6.64%	5	\$	76.83%	\$	\$ 1,340,230	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
11 Residential Home Advantage	\$	23.17%	\$	\$	6.64%	10	\$	76.83%	\$	\$ 140,907	\$	\$	\$ 79,940	\$ 60,450	\$	\$	\$	\$	\$	\$	\$	\$	\$ 140,907
12 Total for Residential Conservation Program	2,871,925		(665,405)	2,206,520			475,733		619,196	2,375,055			526,684	829,814	702,066	474,715	629,461	1,113,704	1,274,803	932,250	874,559	7,994,251	
13 My Home Energy Report	\$ (45,480)	23.17%	\$ 10,537	\$ (56,017)	6.64%	1	\$ (34,943)	76.83%	\$ (45,480)	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ (45,480)
14 Total Residential Conservation and Beta	2,826,445		(654,867)	2,171,577			440,790		573,716	2,375,055			526,684	829,814	702,066	474,715	629,461	1,113,704	1,274,803	932,250	874,559	7,948,770	
15 EnergyWise + Home	\$ 3,534,889	23.17%	\$ (815,009)	\$ 2,719,880	6.64%	10	\$ 380,299	76.83%	\$ 494,983	\$ 3,052,331	\$	\$	\$ 791,656	\$ 1,477,905	\$ 301,384	\$ 365,522	\$ 265,371	\$ 911,314	\$ 718,108	\$ 739,841	\$ 417,476	\$	\$ 5,542,214
16 Total Residential	6,361,333		(1,473,876)	4,887,457			821,088		1,068,698	12,422,386			1,308,340	1,177,773	1,009,450	864,237	891,831	2,045,038	1,992,911	1,677,091	1,491,933	13,496,084	
Non-Residential Programs																							
EE Programs																							
17 Energy Efficient Lighting	\$ 166,801	23.17%	\$ (38,647)	\$ 128,155	6.64%	5	\$ 30,956	76.83%	\$ 40,292	\$ 1,366,479	\$	\$	\$ 74,572	\$ 158,207	\$ 171,973	\$ 116,196	\$ 152,430	\$ 218,730	\$ 191,685	\$ 170,841	\$ 116,917	\$	\$ 1,406,771
18 Non-Residential Smart Saver Performan	\$ 607,790	23.17%	\$ (140,821)	\$ 466,970	6.64%	3	\$ 176,776	76.83%	\$ 230,084	\$ 386,308	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 386,308
19 Non-Residential Smart Saver Performan	\$ 2,678,705	23.17%	\$ (620,637)	\$ 2,058,068	6.64%	5	\$ 779,100	76.83%	\$ 1,014,048	\$ 5,424,473	\$	\$	\$ 645,907	\$ 727,666	\$ 678,479	\$ 438,885	\$ 469,180	\$	\$	\$	\$ 2,008,481	\$ 558,476	\$ 4,846,521
20 Non-Residential Smart Saver Performan	\$ 771,496	23.17%	\$ (162,903)	\$ 608,593	6.64%	5	\$ 98,947	76.83%	\$ 130,774	\$ 403,859	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 403,859
21 Small Business Energy Saver	\$ 1,090,995	23.17%	\$ (252,792)	\$ 838,203	6.64%	3	\$ 212,316	76.83%	\$ 279,207	\$ 1,335,567	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ 1,335,567
22 Total for Non-Residential Conservation P	4,815,779		(1,115,782)	3,699,997			1,381,109		1,800,204	8,814,787			224,479	875,773	931,159	772,346	767,661	218,730	191,685	2,048,935	1,900,973		10,616,993
23 EnergyWise + for Business	\$ 125,102	23.17%	\$ (28,642)	\$ 96,460	6.64%	1	\$ (60,374)	76.83%	\$ (125,102)	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ (125,102)
24 Commercial, Industrial, & Governmental	\$ 525,508	23.17%	\$ (121,702)	\$ 403,806	6.64%	3	\$ 152,785	76.83%	\$ 198,860	\$ 392,843	\$	\$	\$ 17,655	\$ 28,355	\$ 3,716	\$ 25,139	\$ 4,414	\$	\$	\$	\$	\$	\$ 392,843
25 Total for Non-Residential DSM Programs	272,206		(63,068)	209,138			(34,590)		(71,092)	892,843			17,655	28,355	3,716	25,139	4,414						\$ 209,138
26 Total Non-Residential	5,087,985		(1,178,850)	3,909,134			1,346,519		1,729,112	9,707,130			242,134	904,088	940,873	797,533	767,075	218,730	191,685	3,056,961	3,640,051		10,938,282
27 Total All Programs	11,449,338		(2,652,727)	8,796,611			2,149,608		2,797,810	21,636,316			2,050,273	2,081,861	1,944,321	1,641,770	1,658,008	2,263,748	2,184,536	4,879,052	3,311,985		24,634,366

FIA

Duke Energy Progress
 For the Period January 1, 2015 - December 31, 2020
 Docket Number E-2, Sub 1206
 North Carolina Net Lost Revenue for Vintages 2015 - 2020

Line	Residential	Vintage 2015					2019	2020	Total		
		2014	2015	2016	2017	2018					
1	Appliance Recycling Program	\$	123,909	\$	238,215	\$	246,008	\$	46,773	\$	654,905
2	Energy Education Program for Schools	\$	71,588	\$	120,886	\$	124,841	\$	24,793	\$	342,109
3	Energy Efficient Lighting	\$	1,665,788	\$	3,332,098	\$	3,441,107	\$	543,482	\$	8,982,475
4	Home Energy Improvement Program	\$	170,038	\$	347,916	\$	359,298	\$	65,837	\$	943,088
5	Multi-Family	\$	429,296	\$	909,897	\$	939,665	\$	184,586	\$	2,463,444
6	My Home Energy Report	\$	4,024,242	\$	-	\$	-	\$	-	\$	4,024,242
7	Neighborhood Energy Saver	\$	54,534	\$	89,993	\$	92,937	\$	15,460	\$	252,924
8	Residential New Construction	\$	252,450	\$	390,785	\$	403,570	\$	55,643	\$	1,102,448
9	Save Energy and Water Kit	\$	-	\$	-	\$	-	\$	-	\$	-
10	Total Lost Revenues	\$	6,791,845	\$	5,429,790	\$	5,607,426	\$	936,574	\$	18,765,635
11	Found Residential Revenues	\$	-	\$	-	\$	-	\$	-	\$	-
12	Net Lost Residential Revenues	\$	6,791,845	\$	5,429,790	\$	5,607,426	\$	936,574	\$	18,765,635

Line	Non-Residential	Vintage 2015					2019	2020	Total		
		2014	2015	2016	2017	2018					
13	Energy Efficiency for Business	\$	1,386,578	\$	2,353,629	\$	2,443,707	\$	361,644	\$	6,545,559
14	Energy Efficient Lighting	\$	420,420	\$	846,915	\$	879,329	\$	121,833	\$	2,268,497
15	Small Business Energy Saver	\$	737,092	\$	1,703,045	\$	1,768,224	\$	305,285	\$	4,513,645
16	EnergyWise for Business	\$	-	\$	-	\$	-	\$	-	\$	-
17	Total Lost Revenues	\$	2,544,090	\$	4,903,589	\$	5,091,260	\$	788,762	\$	13,327,701
18	Found Non-Residential Revenues	\$	-	\$	-	\$	-	\$	-	\$	-
19	Net Lost Non-Residential Revenues	\$	2,544,090	\$	4,903,589	\$	5,091,260	\$	788,762	\$	13,327,701

Line	DSDR	Vintage 2015					2019	2020	Total		
		2014	2015	2016	2017	2018					
20	DSDR	\$	420,831	\$	145,979	\$	-	\$	-	\$	566,810

Line	Residential	Vintage 2016					2019	2020	Total		
		2014	2015	2016	2017	2018					
1	Appliance Recycling Program	\$	5,095	\$	12,308	\$	5,392	\$	3,265	\$	26,060
2	Energy Education Program for Schools	\$	59,240	\$	135,532	\$	45,380	\$	18,760	\$	258,912
3	Energy Efficient Lighting	\$	1,033,814	\$	2,116,981	\$	850,510	\$	233,337	\$	4,034,642
4	Home Energy Improvement Program	\$	163,848	\$	370,108	\$	105,628	\$	31,983	\$	671,566
5	Multi-Family	\$	332,768	\$	658,165	\$	182,400	\$	50,332	\$	1,223,664
6	My Home Energy Report	\$	5,418,524	\$	-	\$	-	\$	-	\$	5,418,524
7	Neighborhood Energy Saver	\$	44,319	\$	105,283	\$	31,744	\$	10,875	\$	192,221
8	Residential Energy Assessments	\$	106,622	\$	320,122	\$	96,752	\$	23,120	\$	546,615
9	Residential New Construction	\$	274,821	\$	608,926	\$	167,378	\$	51,186	\$	1,102,311
10	Save Energy and Water Kit	\$	362,665	\$	967,169	\$	274,247	\$	78,992	\$	1,703,093
11	Total Lost Revenues	\$	7,801,736	\$	5,314,593	\$	1,559,431	\$	501,848	\$	15,177,508
12	Found Residential Revenues	\$	-	\$	-	\$	-	\$	-	\$	-
13	Net Lost Residential Revenues	\$	7,801,736	\$	5,314,593	\$	1,559,431	\$	501,848	\$	15,177,508

Line	Non-Residential	Vintage 2016					2019	2020	Total		
		2014	2015	2016	2017	2018					
14	Business Energy Reports	\$	191,245	\$	-	\$	-	\$	-	\$	191,245
15	Energy Efficiency for Business	\$	1,638,505	\$	3,101,812	\$	1,790,225	\$	694,350	\$	7,224,892
16	Energy Efficient Lighting	\$	246,438	\$	478,231	\$	276,035	\$	125,435	\$	1,126,139
17	Small Business Energy Saver	\$	1,100,746	\$	2,221,654	\$	1,282,342	\$	535,303	\$	5,140,045
18	EnergyWise for Business	\$	7,298	\$	19,733	\$	11,390	\$	6,032	\$	44,453
19	Total Lost Revenues	\$	3,184,232	\$	5,821,430	\$	3,359,992	\$	1,361,119	\$	13,726,774
20	Found Non-Residential Revenues	\$	(68,561)	\$	(113,553)	\$	(69,282)	\$	-	\$	(251,396)
21	Net Lost Non-Residential Revenues	\$	3,115,672	\$	5,707,877	\$	3,290,710	\$	1,361,119	\$	13,475,378

Line	DSDR	Vintage 2016					2019	2020	Total		
		2014	2015	2016	2017	2018					
22	DSDR	\$	115,745	\$	66,983	\$	-	\$	-	\$	182,728

Line	Residential	Vintage 2017					2019	2020	Total
		2014	2015	2016	2017	2018			
1	Appliance Recycling Program				\$ -	\$ -	\$ -	\$ -	\$ -
2	Energy Education Program for Schools				\$ 75,158	\$ 79,788	\$ 67,465	\$ -	\$ 222,411
3	Energy Efficient Lighting				\$ 650,874	\$ 1,113,237	\$ 995,775	\$ -	\$ 2,759,885
4	Home Energy Improvement Program				\$ 235,241	\$ 276,922	\$ 235,556	\$ -	\$ 747,719
5	Multi-Family				\$ 458,694	\$ 639,583	\$ 562,483	\$ -	\$ 1,660,760
6	My Home Energy Report				\$ 6,016,176	\$ -	\$ -	\$ -	\$ 6,016,176
7	Neighborhood Energy Saver				\$ 42,581	\$ 59,659	\$ 51,044	\$ -	\$ 153,284
8	Residential Energy Assessments				\$ 210,303	\$ 268,902	\$ 163,540	\$ -	\$ 642,744
9	Residential New Construction				\$ 369,740	\$ 507,001	\$ 501,268	\$ -	\$ 1,378,008
10	Save Energy and Water Kit				\$ 754,565	\$ 916,378	\$ 792,743	\$ -	\$ 2,463,686
11	Total Lost Revenues	\$ -	\$ -	\$ -	\$ 8,813,332	\$ 3,861,470	\$ 3,369,874	\$ -	\$ 16,044,675
12	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
13	Net Lost Residential Revenues	\$ -	\$ -	\$ -	\$ 8,813,332	\$ 3,861,470	\$ 3,369,874	\$ -	\$ 16,044,675

Line	Non-Residential	Vintage 2017					2019	2020	Total
		2014	2015	2016	2017	2018			
14	Business Energy Report				\$ 577	\$ -	\$ -	\$ -	\$ 577
15	Energy Efficiency for Business				\$ 2,406,056	\$ 4,327,920	\$ 4,466,854	\$ -	\$ 11,200,830
16	Energy Efficient Lighting				\$ 173,544	\$ 294,923	\$ 314,216	\$ -	\$ 782,685
17	Small Business Energy Saver				\$ 1,045,486	\$ 1,803,999	\$ 1,986,908	\$ -	\$ 4,836,393
18	Non-Res SmartSaver Performance				\$ 8,952	\$ 20,325	\$ 21,017	\$ -	\$ 50,294
19	EnergyWise for Business				\$ 29,965	\$ 45,234	\$ 46,773	\$ -	\$ 121,972
20	Total Lost Revenues	\$ -	\$ -	\$ -	\$ 3,664,580	\$ 6,492,402	\$ 6,835,770	\$ -	\$ 16,992,751
21	Found Non-Residential Revenues	\$ -	\$ -	\$ -	\$ 172,644	\$ 106,296	\$ 106,296	\$ -	\$ (265,236)
22	Net Lost Non-Residential Revenues	\$ -	\$ -	\$ -	\$ 3,591,936	\$ 6,386,106	\$ 6,729,474	\$ -	\$ 16,707,516

Line	DSDR	2014	2015	2016	2017	2018	2019	2020	Total
23	DSDR	\$ -	\$ -	\$ -	\$ 65,125	\$ 2,329	\$ -	\$ -	\$ 67,453

Line	Residential	Vintage 2018					2019	2020	Total
		2014	2015	2016	2017	2018			
1	Appliance Recycling Program				\$ -	\$ -	\$ -	\$ -	\$ -
2	Energy Education Program for Schools				\$ 68,911	\$ 99,626	\$ 122,730	\$ -	\$ 291,267
3	Energy Efficient Lighting				\$ 642,900	\$ 1,172,842	\$ 1,311,236	\$ -	\$ 3,126,978
4	Home Energy Improvement Program				\$ 224,364	\$ 193,400	\$ 421,129	\$ -	\$ 838,893
5	Multi-Family				\$ 434,773	\$ 769,220	\$ 803,785	\$ -	\$ 2,007,778
6	My Home Energy Report				\$ 6,433,772	\$ -	\$ -	\$ -	\$ 6,433,772
7	Neighborhood Energy Saver				\$ 27,317	\$ 103,639	\$ 54,412	\$ -	\$ 185,368
8	Residential Energy Assessments				\$ 236,716	\$ 140,525	\$ 411,000	\$ -	\$ 788,241
9	Residential New Construction				\$ 440,096	\$ 888,107	\$ 864,756	\$ -	\$ 2,192,959
10	Save Energy and Water Kit				\$ 440,027	\$ 1,495,300	\$ 807,224	\$ -	\$ 2,742,550
11	Total Lost Revenues	\$ -	\$ -	\$ -	\$ 8,948,875	\$ 4,862,660	\$ 4,796,272	\$ -	\$ 18,607,807
12	Lost Revenue Decrement Pending Rate Case Implementation				\$ -	\$ -	\$ (727,076)	\$ -	\$ (727,076)
13	Found Residential Revenues				\$ -	\$ (4,903)	\$ -	\$ (8,353)	\$ (13,255)
14	Net Lost Residential Revenues	\$ -	\$ -	\$ -	\$ 8,943,972	\$ 4,862,660	\$ 4,060,845	\$ -	\$ 17,867,477

Line	Non-Residential	Vintage 2018					2019	2020	Total
		2014	2015	2016	2017	2018			
15	Business Energy Report				\$ -	\$ -	\$ -	\$ -	\$ -
16	Energy Efficient Lighting				\$ 169,509	\$ 250,652	\$ 345,637	\$ -	\$ 765,798
17	Non-Residential Smart Saver Prescriptive				\$ 2,158,762	\$ 1,771,404	\$ 3,412,457	\$ -	\$ 7,342,624
18	Non-Residential Smart Saver Custom				\$ 345,367	\$ -	\$ 514,343	\$ -	\$ 859,710
19	Non-Res SmartSaver Performance				\$ 25,808	\$ 71,032	\$ 65,949	\$ -	\$ 162,788
20	Small Business Energy Saver				\$ 864,421	\$ 2,196,937	\$ 1,612,478	\$ -	\$ 4,673,836
21	EnergyWise for Business				\$ 665	\$ 34,279	\$ 1,480	\$ -	\$ 36,424
22	Total Lost Revenues	\$ -	\$ -	\$ -	\$ 3,564,532	\$ 4,324,304	\$ 5,952,343	\$ -	\$ 13,841,180
23	Lost Revenue Decrement Pending Rate Case Implementation				\$ -	\$ -	\$ (902,326)	\$ -	\$ (902,326)
24	Found Non-Residential Revenues				\$ (31,247)	\$ (144,767)	\$ (55,439)	\$ -	\$ (231,452)
25	Net Lost Non-Residential Revenues	\$ -	\$ -	\$ -	\$ 3,533,286	\$ 4,179,537	\$ 4,994,579	\$ -	\$ 12,707,402

(a) Lost revenues were estimated by applying forecasted lost revenue rates for residential and non-residential customers to state specific forecasted program participation.

Line	Residential	Vintage 2019					2019	2020	Total
		2014	2015	2016	2017	2018			
1	Appliance Recycling Program						\$ -	\$ -	\$ -
2	Energy Education Program for Schools						\$ 45,488	\$ 132,191	\$ 177,680
3	Energy Efficient Lighting						\$ 660,301	\$ 1,293,869	\$ 1,954,170
4	Home Energy Improvement Program						\$ 109,946	\$ 206,878	\$ 316,824
5	My Home Energy Report						\$ 6,365,499	\$ -	\$ 6,365,499
6	Neighborhood Energy Saver						\$ 54,545	\$ 103,760	\$ 158,295
7	Multi-Family Energy Efficiency						\$ 456,925	\$ 777,741	\$ 1,234,667
8	Residential Energy Assessments						\$ 77,791	\$ 205,153	\$ 282,944
9	Residential New Construction						\$ 47,875	\$ 907,966	\$ 955,841
10	Save Energy and Water Kit						\$ 912,388	\$ 1,465,807	\$ 2,378,195
11	Total Lost Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,730,758	\$ 5,093,355	\$ 13,824,113
12	Lost Revenue Decrement Pending Rate Case Implementation							\$ (772,110)	\$ (772,110)
13	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
14	Net Lost Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,730,758	\$ 4,321,245	\$ 13,052,003

Line	Non-Residential	Vintage 2019					2019	2020	Total
		2014	2015	2016	2017	2018			
15	Business Energy Reports						\$ -	\$ -	\$ -
16	Energy Efficiency for Business						\$ 1,003,105	\$ 1,443,982	\$ 2,447,087
17	Energy Efficient Lighting						\$ 174,071	\$ 262,223	\$ 436,293
18	Non-Residential Smart Saver Performance Incentive						\$ 120,492	\$ 224,180	\$ 344,672
19	Small Business Energy Saver						\$ 960,827	\$ 1,602,762	\$ 2,563,589
20	EnergyWise ® for Business						\$ 32,780	\$ 1,952	\$ 34,732
21	Total Lost Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,291,275	\$ 3,536,099	\$ 5,826,374
22	Lost Revenue Decrement Pending Rate Case Implementation							\$ (535,892)	\$ (535,892)
23	Found Non-Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (79,389)	\$ -	\$ (79,389)
24	Net Lost Non-Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,211,886	\$ 2,999,207	\$ 5,211,093

Line	Residential	Vintage 2020					2019	2020	Total
		2014	2015	2016	2017	2018			
1	Appliances and Devices						\$ 713,972	\$ 713,972	\$ 713,972
2	Energy Education Program for Schools						\$ -	\$ 78,559	\$ 78,559
3	Energy Efficient Lighting						\$ -	\$ 205,956	\$ 205,956
4	Residential Smart Saver						\$ -	\$ 139,579	\$ 139,579
5	Multi-Family						\$ -	\$ 460,814	\$ 460,814
6	Neighborhood Energy Saver						\$ -	\$ 50,196	\$ 50,196
7	Residential Energy Assessments						\$ -	\$ 204,880	\$ 204,880
8	Residential New Construction						\$ -	\$ 498,971	\$ 498,971
9	My Home Energy Report						\$ -	\$ 8,419,925	\$ 8,419,925
10	Total Lost Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,772,852	\$ 10,772,852	\$ 10,772,852
11	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (1,633,075)	\$ -	\$ (1,633,075)
12	Lost Revenue Decrement Pending Rate Case Implementation							\$ -	\$ -
13	Net Lost Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,139,777	\$ 9,139,777

Line	Non-Residential	Vintage 2020					2019	2020	Total
		2014	2015	2016(a)	2017	2018			
14	Non-Residential Smart Saver Performance (Custom)						\$ 391,253	\$ 391,253	\$ 391,253
15	Energy Efficient Lighting						\$ -	\$ 41,579	\$ 41,579
16	Non-Residential Smart Saver Performance (Prescriptive)						\$ -	\$ 1,452,377	\$ 1,452,377
17	Non-Residential Smart Saver Performance Incentive						\$ -	\$ 136,855	\$ 136,855
18	Small Business Energy Saver						\$ -	\$ 808,177	\$ 808,177
19	EnergyWise ® for Business						\$ -	\$ 1,175	\$ 1,175
20	Total Lost Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,833,415	\$ 2,833,415	\$ 2,833,415
21	Lost Revenue Decrement Pending Rate Case Implementation							\$ (429,522)	\$ (429,522)
22	Found Non-Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23	Net Lost Non-Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,403,893	\$ 2,403,893

(a) Lost revenues were estimated by applying forecasted lost revenue rates for residential and non-residential customers to state specific forecasted program participation.

Duke Energy Progress
 For the Period January 1, 2016 - December 31, 2017
 Docket Number E-2, Sub 1206
 North Carolina Net Lost Revenue True Up for Vintages 2016 - 2017

Line	Residential	Vintage 2016 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
1	Appliance Recycling Program	\$ 5,095	\$ 12,308	\$ 5,330	\$ 3,265	\$ 25,998
2	Energy Education Program for Schools	\$ 59,240	\$ 135,532	\$ 44,845	\$ 18,760	\$ 258,377
3	Energy Efficient Lighting	\$ 1,033,814	\$ 2,116,981	\$ 642,767	\$ 233,337	\$ 4,026,900
3	Home Energy Improvement Program	\$ 163,848	\$ 370,108	\$ 104,359	\$ 31,983	\$ 670,297
4	My Home Energy Report	\$ 5,418,524	\$ -	\$ -	\$ -	\$ 5,418,524
5	Neighborhood Energy Saver	\$ 44,319	\$ 105,283	\$ 31,366	\$ 10,875	\$ 191,842
6	Multi-Family	\$ 332,768	\$ 658,165	\$ 180,201	\$ 50,332	\$ 1,221,466
7	Residential Energy Assessments	\$ 74,198	\$ 222,923	\$ 66,506	\$ 23,120	\$ 386,746
8	Residential New Construction	\$ 298,122	\$ 670,358	\$ 183,321	\$ 51,186	\$ 1,202,988
9	Save Energy and Water Kit	\$ 362,685	\$ 987,169	\$ 270,943	\$ 78,992	\$ 1,699,788
10	Lost Residential Revenues	\$ 7,792,613	\$ 5,278,826	\$ 1,529,639	\$ 501,848	\$ 15,102,926
11	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
12	Net Lost Residential Revenues	\$ 7,792,613	\$ 5,278,826	\$ 1,529,639	\$ 501,848	\$ 15,102,926

Line	Non-Residential	Vintage 2016 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
11	Business Energy Reports	\$ 191,245	\$ -	\$ -	\$ -	\$ 191,245
12	Energy Efficiency for Business	\$ 1,638,505	\$ 3,101,812	\$ 1,851,190	\$ 694,350	\$ 7,285,857
13	Energy Efficient Lighting	\$ 246,438	\$ 478,231	\$ 285,436	\$ 125,435	\$ 1,135,539
14	Small Business Energy Saver	\$ 1,100,746	\$ 2,221,654	\$ 1,326,012	\$ 535,303	\$ 5,183,715
15	EnergyWise for Business	\$ 7,298	\$ 19,733	\$ 11,778	\$ 6,032	\$ 44,841
16	Net Lost Non-Residential Revenues	\$ 3,184,232	\$ 5,821,430	\$ 3,474,415	\$ 1,361,119	\$ 13,841,197
17	Found Non- Residential Revenues	\$ (68,561)	\$ (113,553)	\$ (113,553)	\$ -	\$ (295,666)
18	Net Lost Non-Residential Revenues	\$ 3,115,672	\$ 5,707,877	\$ 3,360,863	\$ 1,361,119	\$ 13,545,531

Line	DSDR	Vintage 2016 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
19	DSDR	\$ 115,745	\$ 66,983	\$ -	\$ -	\$ 182,728

Line	Residential	Vintage 2017 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
1	Appliance Recycling Program	\$ -	\$ -	\$ -	\$ -	\$ -
2	Energy Education Program for Schools	\$ -	\$ 75,158	\$ 78,876	\$ 67,465	\$ 221,498
3	Energy Efficient Lighting	\$ -	\$ 649,785	\$ 1,108,222	\$ 995,775	\$ 2,753,782
4	Home Energy Improvement Program	\$ -	\$ 235,278	\$ 273,767	\$ 235,556	\$ 744,601
5	Multi-Family	\$ -	\$ 458,691	\$ 632,090	\$ 562,483	\$ 1,653,264
6	My Home Energy Report	\$ -	\$ 6,016,176	\$ -	\$ -	\$ 6,016,176
7	Neighborhood Energy Saver	\$ -	\$ 42,581	\$ 58,972	\$ 51,044	\$ 152,597
8	Residential Energy Assessments	\$ -	\$ 147,827	\$ 187,215	\$ 163,540	\$ 498,583
9	Residential New Construction	\$ -	\$ 425,229	\$ 571,056	\$ 501,268	\$ 1,497,553
10	Save Energy and Water Kit	\$ -	\$ 754,565	\$ 905,753	\$ 792,743	\$ 2,453,061
11	Lost Residential Revenues	\$ -	\$ 8,805,290	\$ 3,815,952	\$ 3,369,874	\$ 15,991,116
12	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
13	Net Lost Residential Revenues	\$ -	\$ 8,805,290	\$ 3,815,952	\$ 3,369,874	\$ 15,991,116

Line	Non-Residential	Vintage 2017 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
14	Business Energy Report	\$ -	\$ 577	\$ -	\$ -	\$ 577
15	Energy Efficiency for Business	\$ -	\$ 2,392,469	\$ 4,469,059	\$ 4,466,854	\$ 11,328,382
16	Energy Efficient Lighting	\$ -	\$ 140,167	\$ 327,687	\$ 314,218	\$ 782,073
17	Small Business Energy Saver	\$ -	\$ 1,079,154	\$ 1,987,679	\$ 1,986,908	\$ 5,053,741
18	Non-Res SmartSaver Performance	\$ -	\$ 8,952	\$ 21,025	\$ 21,017	\$ 50,993
19	EnergyWise for Business	\$ -	\$ 29,965	\$ 46,791	\$ 46,773	\$ 123,529
20	Net Lost Non-Residential Revenues	\$ -	\$ 3,651,284	\$ 6,852,241	\$ 6,835,770	\$ 17,339,295
21	Found Non- Residential Revenues	\$ -	\$ (72,644)	\$ (106,296)	\$ (106,296)	\$ (285,236)
22	Net Lost Non-Residential Revenues	\$ -	\$ 3,578,640	\$ 6,745,945	\$ 6,729,474	\$ 17,054,059

Line	DSDR	Vintage 2017 as Filed Lost Revenue kWh \$				Total
		2016(a)	2017(a)	2018	2019	
23	DSDR	\$ -	\$ 65,125	\$ 2,329	\$ -	\$ 67,453

Duke Energy Progress
 For the Period January 1, 2016 - December 31, 2017
 Docket Number E-2, Sub 1206
 North Carolina Net Lost Revenue True Up for Vintages 2016

		Vintage 2016 True Up Lost Revenue kWh \$				
Line	Residential	2016(a)	2017(a)	2018	2019	Total
1	Appliance Recycling Program	\$ 5,095	\$ 12,308	\$ 5,392	\$ 3,265	\$ 26,060
2	Energy Education Program for Schools	\$ 59,240	\$ 135,532	\$ 45,380	\$ 18,760	\$ 258,912
3	Energy Efficient Lighting	\$ 1,033,814	\$ 2,116,981	\$ 650,510	\$ 233,337	\$ 4,034,642
3	Home Energy Improvement Program	\$ 163,848	\$ 370,108	\$ 105,628	\$ 31,983	\$ 671,566
4	My Home Energy Report	\$ 5,418,524	\$ -	\$ -	\$ -	\$ 5,418,524
5	Neighborhood Energy Saver	\$ 44,319	\$ 105,283	\$ 31,744	\$ 10,875	\$ 192,221
6	Multi-Family	\$ 332,768	\$ 658,165	\$ 182,400	\$ 50,332	\$ 1,223,664
7	Residential Energy Assessments	\$ 106,622	\$ 320,122	\$ 96,752	\$ 23,120	\$ 546,615
8	Residential New Construction	\$ 274,821	\$ 608,926	\$ 167,378	\$ 51,186	\$ 1,102,311
9	Save Energy and Water Kit	\$ 362,685	\$ 987,169	\$ 274,247	\$ 78,992	\$ 1,703,093
10	Lost Residential Revenues	\$ 7,801,736	\$ 5,314,593	\$ 1,559,431	\$ 501,848	\$ 15,177,608
11	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
12	Net Lost Residential Revenues	\$ 7,801,736	\$ 5,314,593	\$ 1,559,431	\$ 501,848	\$ 15,177,608

		2016(a)	2017(a)	2018	2019	Total
11	Business Energy Reports	\$ 191,245	\$ -	\$ -	\$ -	\$ 191,245
12	Energy Efficiency for Business	\$ 1,638,505	\$ 3,101,812	\$ 1,790,225	\$ 694,350	\$ 7,224,892
13	Energy Efficient Lighting	\$ 246,438	\$ 478,231	\$ 276,035	\$ 125,435	\$ 1,126,139
14	Small Business Energy Saver	\$ 1,100,746	\$ 2,221,654	\$ 1,282,342	\$ 535,303	\$ 5,140,045
15	EnergyWise for Business	\$ 7,298	\$ 19,733	\$ 11,390	\$ 6,032	\$ 44,453
16	Net Lost Non-Residential Revenues	\$ 3,184,232	\$ 5,821,430	\$ 3,359,992	\$ 1,361,119	\$ 13,726,774
17	Found Non-Residential Revenues	\$ (68,561)	\$ (113,553)	\$ (69,282)	\$ -	\$ (251,396)
18	Net Lost Non-Residential Revenues	\$ 3,115,672	\$ 5,707,877	\$ 3,290,710	\$ 1,361,119	\$ 13,475,378

		2016(a)	2017(a)	2018	2019	Total
19	DSDR	\$ 115,745	\$ 66,983	\$ -	\$ -	\$ 182,728

		Vintage 2017 True Up Lost Revenue kWh \$				
Line	Residential	2016(a)	2017(a)	2018	2019	Total
1	Appliance Recycling Program	\$ -	\$ -	\$ -	\$ -	\$ -
2	Energy Education Program for Schools	\$ -	\$ 75,158	\$ 79,788	\$ 67,465	\$ 222,411
3	Energy Efficient Lighting	\$ -	\$ 650,874	\$ 1,113,237	\$ 995,775	\$ 2,759,885
4	Home Energy Improvement Program	\$ -	\$ 235,241	\$ 276,922	\$ 235,556	\$ 747,719
5	Multi-Family	\$ -	\$ 458,694	\$ 639,583	\$ 562,483	\$ 1,660,760
6	My Home Energy Report	\$ -	\$ 6,016,176	\$ -	\$ -	\$ 6,016,176
7	Neighborhood Energy Saver	\$ -	\$ 42,581	\$ 59,659	\$ 51,044	\$ 153,284
8	Residential Energy Assessments	\$ -	\$ 210,303	\$ 268,902	\$ 163,540	\$ 642,744
9	Residential New Construction	\$ -	\$ 369,740	\$ 507,001	\$ 501,268	\$ 1,378,008
10	Save Energy and Water Kit	\$ -	\$ 754,565	\$ 916,378	\$ 792,743	\$ 2,463,686
11	Lost Residential Revenues	\$ -	\$ 8,813,332	\$ 3,861,470	\$ 3,369,874	\$ 16,044,675
12	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
13	Net Lost Residential Revenues	\$ -	\$ 8,813,332	\$ 3,861,470	\$ 3,369,874	\$ 16,044,675

		2016(a)	2017(a)	2018	2019	Total
14	Business Energy Report	\$ -	\$ 577	\$ -	\$ -	\$ 577
15	Energy Efficiency for Business	\$ -	\$ 2,406,056	\$ 4,327,920	\$ 4,466,854	\$ 11,200,830
16	Energy Efficient Lighting	\$ -	\$ 173,544	\$ 294,923	\$ 314,218	\$ 782,685
17	Small Business Energy Saver	\$ -	\$ 1,045,486	\$ 1,803,999	\$ 1,986,908	\$ 4,836,393
18	Non-Res SmartSaver Performance	\$ -	\$ 8,952	\$ 20,325	\$ 21,017	\$ 50,294
19	EnergyWise for Business	\$ -	\$ 29,965	\$ 45,234	\$ 46,773	\$ 121,972
20	Net Lost Non-Residential Revenues	\$ -	\$ 3,664,580	\$ 6,492,402	\$ 6,835,770	\$ 16,992,751
21	Found Non-Residential Revenues	\$ -	\$ (72,644)	\$ (106,296)	\$ (106,296)	\$ (285,236)
22	Net Lost Non-Residential Revenues	\$ -	\$ 3,591,936	\$ 6,386,106	\$ 6,729,474	\$ 16,707,516

		2016(a)	2017(a)	2018	2019	Total
23	DSDR	\$ -	\$ 65,125	\$ 2,329	\$ -	\$ 67,453

Duke Energy Progress
 For the Period January 1, 2016 - December 31, 2017
 Docket Number E-2, Sub 1206
 North Carolina Net Lost Revenue True Up for Vintages 2016

Line	Residential	Vintage 2016 Variance Lost Revenue kWh \$				
		2016(a)	2017(a)	2018	2019	Total
1	Appliance Recycling Program	\$ -	\$ -	\$ 62	\$ -	\$ 62
2	Energy Education Program for Schools	\$ -	\$ -	\$ 535	\$ -	\$ 535
3	Energy Efficient Lighting	\$ -	\$ -	\$ 7,742	\$ -	\$ 7,742
3	Home Energy Improvement Program	\$ -	\$ -	\$ 1,268	\$ -	\$ 1,268
4	My Home Energy Report	\$ -	\$ -	\$ -	\$ -	\$ -
5	Neighborhood Energy Saver	\$ -	\$ -	\$ 379	\$ -	\$ 379
6	Multi-Family	\$ -	\$ -	\$ 2,199	\$ -	\$ 2,199
7	Residential Energy Assessments	\$ 32,424	\$ 97,199	\$ 30,246	\$ -	\$ 159,870
8	Residential New Construction	\$ (23,301)	\$ (61,433)	\$ (15,943)	\$ -	\$ (100,677)
9	Save Energy and Water Kit	\$ -	\$ -	\$ 3,305	\$ -	\$ 3,305
10	Lost Residential Revenues	\$ 9,123	\$ 35,767	\$ 29,792	\$ -	\$ 74,682
11	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
12	Net Lost Residential Revenues	\$ 9,123	\$ 35,767	\$ 29,792	\$ -	\$ 74,682

Line	Non-Residential	Vintage 2016 Variance Lost Revenue kWh \$				
		2016(a)	2017(a)	2018	2019	Total
11	Business Energy Reports	-	-	-	\$ -	\$ -
12	Energy Efficiency for Business	-	-	(60,965)	\$ -	\$ (60,965)
13	Energy Efficient Lighting	-	-	(9,400)	\$ -	\$ (9,400)
14	Small Business Energy Saver	-	-	(43,670)	\$ -	\$ (43,670)
15	EnergyWise for Business	-	-	(388)	\$ -	\$ (388)
16	Net Lost Non-Residential Revenues	0	0	(114,423)	0	(114,423)
17	Found Non- Residential Revenues	-	(0)	44,270	\$ -	\$ 44,270
18	Net Lost Non-Residential Revenues	\$ -	\$ (0)	\$ (70,153)	\$ -	\$ (70,153)

Line	DSDR	2016(a)	2017(a)	2018	2019	Total
19	DSDR	-	-	-	-	\$ -

Line	Residential	Vintage 2017 Variance Lost Revenue kWh \$				
		2016(a)	2017(a)	2018	2019	Total
1	Appliance Recycling Program	\$ -	\$ -	\$ -	\$ -	\$ -
2	Energy Education Program for Schools	\$ -	\$ -	\$ 913	\$ -	\$ 913
3	Energy Efficient Lighting	\$ -	\$ 1,089	\$ 5,014	\$ -	\$ 6,103
4	Home Energy Improvement Program	\$ -	\$ (37)	\$ 3,155	\$ -	\$ 3,118
5	Multi-Family	\$ -	\$ 3	\$ 7,493	\$ -	\$ 7,496
6	My Home Energy Report	\$ -	\$ -	\$ -	\$ -	\$ -
7	Neighborhood Energy Saver	\$ -	\$ -	\$ 687	\$ -	\$ 687
8	Residential Energy Assessments	\$ -	\$ 62,475	\$ 81,686	\$ -	\$ 144,161
9	Residential New Construction	\$ -	\$ (55,489)	\$ (64,055)	\$ -	\$ (119,544)
10	Save Energy and Water Kit	\$ -	\$ -	\$ 10,625	\$ -	\$ 10,625
11	Lost Residential Revenues	\$ -	\$ 8,042	\$ 45,518	\$ -	\$ 53,560
12	Found Residential Revenues	\$ -	\$ -	\$ -	\$ -	\$ -
13	Net Lost Residential Revenues	\$ -	\$ 8,042	\$ 45,518	\$ -	\$ 53,560

Line	Non-Residential	Vintage 2017 Variance Lost Revenue kWh \$				
		2016(a)	2017(a)	2018	2019	Total
14	Business Energy Report	-	-	-	-	-
15	Energy Efficiency for Business	-	13,587	(141,139)	-	(127,552)
16	Energy Efficient Lighting	-	33,377	(32,764)	-	613
17	Small Business Energy Saver	-	(33,668)	(183,680)	-	(217,348)
18	Non-Res SmartSaver Performance	-	-	(700)	-	(700)
19	EnergyWise for Business	-	-	(1,557)	-	(1,557)
20	Net Lost Non-Residential Revenues	0	13,296	(359,839)	0	(346,543)
21	Found Non- Residential Revenues	-	-	-	-	-
22	Net Lost Non-Residential Revenues	\$ -	\$ 13,296	\$ (359,839)	\$ -	\$ (346,543)

Line	DSDR	2016(a)	2017(a)	2018	2019	Total
23	DSDR	-	-	-	-	\$ -

I/A

**Duke Energy Progress
Actual Program Costs for Vintage Years 2015 - 2018
Docket Number E-2 Sub 1206**

		Carolinas System - 12 Months Ended 12/31/2015	Carolinas System - 12 Months Ended 12/31/2016	Carolinas System - 12 Months Ended 12/31/2017	Carolinas System - 12 Months Ended 12/31/2018
1	Appliance Recycling Program	\$ 1,220,465	\$ (137,009)	\$ 5,586	\$ -
2	Residential Service - Smart Saver	\$ 5,298,232	\$ 6,013,170	\$ 6,961,463	\$ 7,168,833
3	Residential Lighting Program	\$ 14,616,136	\$ 15,552,184	\$ 10,904,279	\$ 8,752,062
4	Neighborhood Energy Saver Program	\$ 1,586,061	\$ 2,052,535	\$ 1,781,211	\$ 1,845,739
5	Residential New Construction	\$ 7,447,258	\$ 9,405,615	\$ 11,671,724	\$ 13,189,949
6	Residential Energy Efficient Benchmarking	\$ -	\$ -	\$ -	\$ -
7	Residential Home Advantage	\$ -	\$ -	\$ -	\$ -
8	Energy Education Program for Schools	\$ 703,689	\$ 827,497	\$ 835,991	\$ 676,815
9	Multi-Family	\$ 2,615,745	\$ 2,045,220	\$ 2,514,413	\$ 2,409,743
10	My Home Energy Report	\$ 5,808,941	\$ 5,890,093	\$ 6,753,153	\$ 7,687,891
11	Residential Energy Assessments	\$ -	\$ 1,417,924	\$ 1,863,486	\$ 1,851,965
12	Save Energy and Water Kit	\$ -	\$ 674,538	\$ 888,869	\$ 825,279
13	Business Energy Report	\$ 74,374	\$ 69,516	\$ 20,330	\$ -
14	Energy Efficiency for Business	\$ 6,226,453	\$ 14,159,310	\$ 21,749,807	\$ 13,690,077
15	Energy Efficient Lighting	\$ 1,775,958	\$ 1,889,694	\$ 1,324,943	\$ 1,063,434
16	Non-Res SmartSaver Performance	\$ -	\$ -	\$ 147,160	\$ 201,559
17	Small Business Energy Saver	\$ 9,780,196	\$ 9,336,274	\$ 8,770,755	\$ 8,858,213
18	EnergyWise	\$ 12,212,851	\$ 13,633,666	\$ 13,125,314	\$ 14,619,512
19	EnergyWise for Business	\$ 65,456	\$ 1,112,815	\$ 1,390,549	\$ 2,108,030
20	CIG DR	\$ 1,899,146	\$ 1,615,703	\$ 1,523,514	\$ 1,692,473
21	Total Energy Efficiency & Demand Side Program Cr	\$ 71,330,960	\$ 85,558,746	\$ 92,232,546	\$ 86,641,573

22	NC Allocation Factor for EE programs	Miller Exhibit 5 Pg.1 thr	85.29%	85.44%	85.51%	85.56%
23	NC Allocation Factor for DSM programs	Miller Exhibit 5 Pg.1 thr	86.05%	86.17%	86.16%	86.53%

		NC Allocated - 12 Months Ended 12/31/2015 (1)	NC Allocated - 12 Months Ended 12/31/2016 (1)	NC Allocated - 12 Months Ended 12/31/2017 (1)	NC Allocated - 12 Months Ended 12/31/2018 (1)
24	Appliance Recycling Program	Line 1 * Line 21 \$ 1,040,934.99	\$ (117,058.57)	\$ 4,776.58	\$ -
25	Residential Service - Smart Saver	Line 2 * Line 21 \$ 4,518,861.95	\$ 5,137,557.41	\$ 5,952,627.50	\$ 6,133,715.68
26	Residential Lighting Program	Line 3 * Line 21 \$ 12,466,102.61	\$ 13,287,540.35	\$ 9,324,062.29	\$ 7,488,339.94
27	Neighborhood Energy Saver Program	Line 4 * Line 21 \$ 1,352,751.03	\$ 1,753,653.63	\$ 1,523,082.68	\$ 1,579,230.00
28	Residential New Construction	Line 5 * Line 21 \$ 6,351,766.01	\$ 8,036,009.10	\$ 9,980,291.02	\$ 11,285,434.67
29	Residential Energy Efficient Benchmarking	Line 6 * Line 21 \$ -	\$ -	\$ -	\$ -
30	Residential Home Advantage	Line 7 * Line 21 \$ -	\$ -	\$ -	\$ -
31	Energy Education Program for Schools	Line 8 * Line 21 \$ 600,176.12	\$ 707,000.01	\$ 714,841.32	\$ 579,088.78
32	Multi-Family	Line 9 * Line 21 \$ 2,230,968.51	\$ 1,747,403.44	\$ 2,150,031.73	\$ 2,061,796.67
33	My Home Energy Report	Line 10 * Line 21 \$ 4,954,445.77	\$ 5,032,402.60	\$ 5,774,505.65	\$ 6,577,826.06
34	Residential Energy Assessments	Line 11 * Line 21 \$ -	\$ 1,211,452.08	\$ 1,593,434.59	\$ 1,584,557.04
35	Save Energy and Water Kit	Line 12 * Line 21 \$ -	\$ 576,314.67	\$ 760,056.35	\$ 706,115.88
36	Business Energy Report	Line 13 * Line 21 \$ 63,433.37	\$ 59,393.23	\$ 17,383.70	\$ -
37	Energy Efficiency for Business	Line 14 * Line 21 \$ 5,310,541.74	\$ 12,097,490.87	\$ 18,597,886.97	\$ 11,713,348.28
38	Energy Efficient Lighting	Line 15 * Line 21 \$ 1,514,714.78	\$ 1,614,524.95	\$ 1,132,935.88	\$ 909,883.35
39	Non-Res SmartSaver Performance	Line 16 * Line 21 \$ -	\$ -	\$ 125,834.21	\$ 172,455.95
40	Small Business Energy Saver	Line 17 * Line 21 \$ 8,341,529.15	\$ 7,976,765.21	\$ 7,499,722.72	\$ 7,579,163.64
41	EnergyWise	Line 18 * Line 22 \$ 10,508,750.77	\$ 11,747,962.62	\$ 11,308,498.16	\$ 12,650,326.09
42	EnergyWise for Business	Line 19 * Line 22 \$ 56,323.08	\$ 958,898.92	\$ 1,198,068.36	\$ 1,824,087.26
43	CIG DR	Line 20 * Line 22 \$ 1,634,152	\$ 1,392,232	\$ 1,312,628	\$ 1,464,504
44	Total Energy Efficiency & Demand Side Program Cr	Sum (Lines 21-39) \$ 60,945,452	\$ 73,219,542	\$ 78,970,668	\$ 74,309,873

(1) NC Allocations are based on annual weighted average, which are employed in the allocation of Utility Cost Test (UCT) results for PPI determination. This differs from the allocation used in Miller

I/A

Evans Exhibit 4
Duke Energy Progress, LLC
January - December 2018 Actuals
January 2019 - December 2020 Estimates
Docket Number E-2, Sub 1206
North Carolina Found Revenues

	Actual/Reported KWH			Estimated KWH	
	2016	2017	2018	2019	2020
Economic Development	40,751,172	217,748,650	43,971,258	-	-
Lighting					
Residential	21,158	18,164	15,302	15,302	15,302
Non Residential (Regulated)	328,140	304,084	111,625	111,625	111,625
MV to LED Credit - Residential (Regulated)	(460,649)	(456,768)	(2,478)	(3,371)	(3,371)
MV to LED Credit - Non-Residential (Regulated)	(105,415)	(105,982)	(919)	(1,250)	(1,250)
Total KWH	40,534,406	217,508,148	44,094,788	122,305	122,305
Total KWH Included	(216,766)	(240,502)	123,530	122,305	122,305
Total KWH Included (net of Free Riders 15%)	(184,251)	(204,427)	105,001	103,959	103,959
Annualized Found Revenue - Non Residential	\$ 113,553	\$ 106,296	\$ 55,439	\$ 57,950	\$ 55,252
Annualized Found Revenue - Residential	\$ (279,063)	\$ (297,693)	\$ 8,353	\$ 7,960	\$ 7,769
	2016	2017	2018	2019	2020
Vintage 2016 - Non Res	\$ 68,561	\$ 113,553	\$ 69,282	\$ 22,835	\$ -
Vintage 2017 - Non Res		\$ 72,644	\$ 106,296	\$ 106,296	\$ 33,652
Vintage 2018 - Non Res			\$ 31,247	\$ 55,439	\$ 55,439
Vintage 2019 - Non Res				\$ 31,390	\$ 57,950
Vintage 2020 - Non Res					\$ 29,928
Net Negative Found Revenues to Zero*	-	-	-	-	-
Subtotal - Non Res	\$ 68,561	\$ 186,197	\$ 206,825	\$ 215,959	\$ 176,969
Vintage 2016 - Res	\$ (150,940)	\$ (279,063)	\$ (76,592)	\$ (20,406)	\$ (20,406)
Vintage 2017 - Res		\$ (160,772)	\$ (199,235)	\$ (173,325)	\$ (173,325)
Vintage 2018 - Res			\$ 4,903	\$ 8,353	\$ 8,353
Vintage 2019 - Res				\$ 4,312	\$ 4,312
Vintage 2020 - Res					\$ -
Net Negative Found Revenues to Zero*	150,940	439,836	270,925	181,067	181,067
Subtotal - Residential	\$ -	\$ -	\$ -	\$ -	\$ -
Total Found Revenues	\$ 68,561	\$ 186,197	\$ 206,825	\$ 215,959	\$ 176,969

* Eliminates the inclusion of total negative found revenues at the Residential level

Duke Energy Progress
System Event Based Demand Response January 1, 2018 - December 31, 2018
Docket Number E-2, Sub 1206

Evans Exhibit 5

Date	State	Program Name	Event Trigger	Customers Notified /Switches Dispatched	MW Reduction
1/1/2018	NC and SC	DSDR	Capacity Needs	-NA-	426
1/2/2018	NC and SC	DEP DRA	Capacity Needs	14 Customers / 41 Sites	7.5
1/2/2018	NC	DEP EnergyWise Home	Capacity Needs	10,760/14,909	13.6
1/2/2018	NC and SC	DSDR	Capacity Needs	-NA-	714
1/2/2018	NC and SC	DSDR	Capacity Needs	-NA-	402
1/3/2018	NC and SC	DSDR	Capacity Needs	-NA-	1,446
1/3/2018	NC and SC	DSDR	Capacity Needs	-NA-	594
1/4/2018	NC and SC	DSDR	Capacity Needs	-NA-	487
1/4/2018	NC and SC	DSDR	Capacity Needs	-NA-	585
1/5/2018	NC	DEP EnergyWise Home	Capacity Needs	10,763/14,918	12.3
1/5/2018	NC and SC	DSDR	Capacity Needs	-NA-	867
1/5/2018	NC and SC	DSDR	Capacity Needs	-NA-	519
1/6/2018	NC and SC	DSDR	Capacity Needs	-NA-	989
1/7/2018	NC and SC	DEP DRA	Capacity Needs	14 Customers / 42 Sites	8.7
1/7/2018	NC	DEP EnergyWise Home	Capacity Needs	10,749/14,900	15
1/7/2018	NC and SC	DSDR	Capacity Needs	-NA-	1,177
1/8/2018	NC	DEP EnergyWise Home	Capacity Needs	10,749/14,900	5.6
1/8/2018	NC and SC	DSDR	Capacity Needs	-NA-	1,055
1/14/2018	NC and SC	DSDR	Capacity Needs	-NA-	617
1/15/2018	NC and SC	DEP DRA	Capacity Needs	14 Customers / 42 Sites	8.1
1/15/2018	NC	DEP EnergyWise Home	Capacity Needs	10,738/14,883	8.2
1/15/2018	NC and SC	DSDR	Capacity Needs	-NA-	633
1/16/2018	NC and SC	DSDR	Capacity Needs	-NA-	413
1/17/2018	NC and SC	DSDR	Capacity Needs	-NA-	1,005
1/18/2018	NC and SC	DEP DRA	Capacity Needs	14 Customers / 42 Sites	7.1
1/18/2018	NC	DEP EnergyWise Home	Capacity Needs	10,738/14,883	8.2
1/18/2018	NC and SC	DSDR	Capacity Needs	-NA-	899
3/9/2018	NC and SC	DSDR	Capacity Needs	-NA-	564
3/13/2018	NC and SC	DSDR	Capacity Needs	-NA-	526
3/15/2018	NC and SC	DSDR	Capacity Needs	-NA-	253
3/22/2018	NC and SC	DSDR	Capacity Needs	-NA-	189
6/18/2018	NC and SC	DSDR	Capacity Needs	-NA-	968
6/19/2018	NC and SC	DEP DRA	Tariff - Minimum Event	22 Customers / 71 Sites	22.2
6/19/2018	NC and SC	DSDR	Capacity Needs	-NA-	747
6/20/2018	NC and SC	DSDR	Capacity Needs	-NA-	1,019
8/8/2018	NC and SC	DEP DRA	Tariff - Minimum Event	22 Customers / 70 Sites	21.7
8/28/2018	NC and SC	DEP DRA	Tariff - Minimum Event	22 Customers / 70 Sites	20.7
8/28/2018	NC & SC	EnergyWise Business	Economic	3179	4
8/30/2018	NC & SC	DEP EnergyWise Home	Test	174,282/223,248	278
11/28/2018	NC	DEP EnergyWise Home	Capacity Needs	11,752/16,351	11.8
11/29/2018	NC	DEP EnergyWise Home	Capacity Needs	11,752/16,351	11
11/29/2018	NC and SC	DSDR	Capacity Needs	-NA-	516

*pg 1 of 56
filed in the
docket
1/11/18

I/A

Income-Qualified Programs

A. Description

Neighborhood Energy Savers

The purpose of Duke Energy Progress's ("DEP") Neighborhood Energy Saver program (the "Program") is to reduce energy usage through the direct installation of energy efficiency measures within the households of income-qualified residential customers. The Program utilizes Honeywell Building Solutions, which was awarded the contract through a competitive bid process, to (1) to identify appropriate energy conservation measures through an on-site energy assessment of the residence, (2) to install a comprehensive package of energy conservation measures at no cost to the customer, and (3) to provide one-on-one energy education. Program measures address end-uses in lighting, refrigeration, air infiltration and HVAC applications.

Program participants receive a free energy assessment of their homes followed by a recommendation of energy efficiency measures to be installed at no cost to the resident. A team of energy technicians install applicable measures and provide one-on-one energy education about each measure, emphasizing the benefit of each and recommending behavior changes to reduce and control energy usage. The goal is to serve a minimum of 4,500 households each year.

Pay for Performance

The Pay for Performance Pilot Program will provide payments, based on kilowatt-hour ("kWh") savings, to local non-profit organizations that provide weatherization and other energy saving upgrades to residential low-income households. These payments are intended to assist these organizations in expanding the number of customers they serve through their programs. The Program is also intended to leverage funding from other third-party sources.

The Company is proposing that this Pilot remain in place for thirty-six months and begin in Buncombe County, North Carolina.

Audience

Neighborhood Energy Savers

The Program is designed for individually-metered residential homeowners and tenants within DEP. Implementation of the program is done in neighborhoods designated by DEP. Income-eligible neighborhoods must have at least 50% of households with income equal to or less than 200% of the poverty level set by the U.S. Department of Energy. Participants are only able to participate in the Program once.

Pay for Performance

The Pay for Performance Pilot Program is designed for non-profit agencies providing weatherization and energy efficiency measures to low-income, individually-metered residential homeowners and tenants with incomes equal to or less than 200% of the poverty level living within DEP service territory.

B & C. Impacts, Participants and Expenses

2018 YTD Results	Annual Forecast	Actual at 12/31/2018	Variation
Savings (MWH)	2,033	2,279	246
Savings (MW)	0.31	0.35	0.04
Participants		5,047	
2018 Program Expenses		\$1,845,739	

F/A

Duke Energy Progress
 Estimate - January 1, 2020 - December 31, 2020
 Docket Number E-2, Sub 1206
 Projected Program/Portfolio Cost Effectiveness - Vintage 2020

Program	UCT	TRC	RIM	PCT
Residential Programs				
• Energy Education Program for Schools	1.35	1.38	0.51	10.30
• Energy Efficient Appliances & Devices	14.59	15.40	0.88	34.77
• Energy Efficient Lighting	2.01	2.70	0.71	6.42
• EnergyWise Home	5.27	15.93	5.27	
• Multi-Family EE Products & Services	2.65	2.65	0.54	24.31
• My Home Energy Report	1.01	1.01	0.43	
• Neighborhood Energy Saver	0.49	0.49	0.31	2.23
• Residential Energy Assessments	2.15	2.19	0.56	49.13
• Residential New Construction	1.55	4.93	1.30	6.84
• Residential Smart \$aver	1.60	0.97	0.69	1.66
Residential Total	2.56	3.68	1.11	7.90
Non-Residential Programs				
• Non-Residential Smart \$aver	3.36	1.68	0.87	3.32
• Non-Residential Smart \$aver Performance Incentive	4.05	0.99	1.09	1.54
• Small Business Energy Saver	2.51	1.55	0.86	2.85
• EnergyWise ® for Business	0.27	0.46	0.27	
• Commercial Industrial Governmental Demand Response	1.84	28.03	1.84	
Non-Residential Total	2.59	1.77	0.92	3.21
Overall Portfolio total	2.57	2.51	1.02	4.52

EM

Duke Energy Progress
Changes to DSM/EE Cost Recovery Vintage 2018 True Up January 1, 2018 - December 31, 2018
Changes from Prior Filing Due to Application of M&V and Participation
System kWh and kW Impacts Net Free Riders at the Plant

Residential Programs

Program Name	Filed in Docket E-2, Sub 1145		Filed in Docket E-2, Sub 1206		Overall Variance		E-2 Sub 1145	E-2 Sub 1206	Delta	Variance due to Change in Impacts and Measure Mix		Variance due to Change in Participation		Sum of Variances	
	kWh	kW	kWh	kW	kWh	kW	System Participation	Participation	Participation	kWh	kW	kWh	kW	kWh	kW
Apoiance Recycling Program	2,298,513	304	-	-	(2,298,513)	(304)	3,847	-	(3,847)	-	-	(2,298,513)	(304)	(2,298,513)	(304)
Energy Education Program for Schools	1,997,287	198	2,563,019	766	565,732	568	8,798	9,013	215	516,924	563	48,808	5	565,732	568
Energy Efficient Lighting	23,122,871	3,334	25,642,842	4,227	2,519,971	893	1,646,217	1,915,182	248,964	(915,021)	394	3,454,993	498	2,519,971	893
Home Energy Improvement	3,133,816	1,141	7,228,648	1,805	4,094,831	664	9,260	24,562	15,302	(1,083,749)	(1,222)	5,178,580	1,885	4,094,831	664
Multi-Family	13,578,543	1,837	13,291,652	1,744	(286,891)	(93)	264,177	288,092	23,915	(1,516,133)	(259)	1,229,243	166	(286,891)	(93)
Neighborhood Energy Saver	2,033,179	310	2,278,804	347	245,625	37	4,503	5,047	544	-	-	245,625	37	245,625	37
Residential Energy Assessments	7,719,898	455	7,751,895	935	5,031,997	480	22,036	37,923	15,887	3,071,069	152	1,960,928	328	5,031,997	480
Residential New Construction	16,047,598	6,950	14,263,235	5,440	(1,784,363)	(1,510)	11,341,393	11,275,657	(65,736)	(1,691,350)	(1,470)	(93,014)	(40)	(1,784,363)	(1,510)
Save Energy and Water Kit	21,484,411	1,720	15,252,311	5,058	(6,232,100)	3,337	432,591	276,327	(156,264)	1,528,672	3,959	(7,760,772)	(621)	(6,232,100)	3,337
Residential Home Advantage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
My Home Energy Report (1)	132,895,213	36,113	122,685,145	20,776	(10,210,068)	(15,337)	673,400	827,741	154,341	(40,669,279)	(23,614)	30,459,210	8,277	(10,210,068)	(15,337)
EnergyWise [®] Home	-	-	-	-	-	404	14,985	15,602	617	-	(793)	-	-	404	404
Residential Programs Total	219,311,328	81,441	210,957,549	70,580	(8,353,779)	(10,861)	14,441,207	14,675,145	233,939	(40,778,869)	(22,289)	32,425,090	11,428	(8,353,779)	(10,861)

Non-Residential Programs

Program Name	Filed in Docket E-2, Sub 1145		Filed in Docket E-2, Sub 1206		Overall Variance		E-2 Sub 1145	E-2 Sub 1206	Delta	Variance due to Change in Impacts and Measure Mix		Variance due to Change in Participation		Sum of Variances	
	kWh	kW	kWh	kW	kWh	kW	System Participation	Participation	Participation	kWh	kW	kWh	kW	kWh	kW
Energy Efficient Lighting	6,127,641	1,587	6,759,940	1,752	632,299	165	202,457	232,072	29,616	(264,062)	(67)	896,361	232	632,299	165
Non-Residential Smart Saver Performance (Custom)	11,484,274	1,311	11,901,442	1,883	417,167	572	8,760	11,338	2,578	(2,962,565)	186	3,379,733	386	417,167	572
Non-Residential Smart Saver Performance (Prescriptive)	29,918,863	3,145	85,112,310	14,782	55,193,448	11,637	2,927,380	1,098,832	(1,828,548)	73,881,856	13,602	(18,688,409)	(1,965)	55,193,448	11,637
Non-Residential Smart Saver Performance Incentive	1,729,413	197	1,519,117	129	(210,295)	(69)	1,662,148	37	(1,662,111)	1,519,079	129	(1,729,374)	(197)	(210,295)	(69)
Small Business Energy Saver	5,157,693	940	40,298,466	6,667	(35,140,773)	(3,727)	44,500,000	38,604,480	(5,895,520)	(6,179,326)	(1,956)	(7,097,900)	(1,317)	(35,140,773)	(3,727)
EnergyWise [®] for Business	2,157,913	10,542	38,158	2,651	(2,119,756)	(7,882)	2,838	5,426	2,588	(4,087,449)	(17,495)	1,967,693	9,613	(2,119,756)	(7,882)
Commercial Industrial Governmental Demand Response	-	7,357	-	1,629	-	(5,728)	7,000	1,550	(5,450)	-	-	-	-	(5,728)	(5,728)
Non-Residential Programs Total	104,993,797	34,080	145,629,433	29,503	40,635,636	(4,577)	49,310,582	39,953,735	(9,356,847)	61,907,532	(5,601)	(21,271,897)	1,024	40,635,636	(4,577)

Distribution System Demand Response

DSDR	49,637,083	310,515	44,989,144	275,885	(4,647,939)	(34,630)	-	-	-	N/A	N/A	-	-	N/A	N/A
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Total Residential and Non-Residential Programs	373,942,208	426,037	401,576,126	375,968	27,633,919	(50,069)	63,751,789	54,628,880	(9,122,909)	21,128,663	(27,890)	11,153,194	12,452	32,281,857	(15,438)
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NOTE - The actual per unit impacts are reflective of the following EM&V reports:

Program Name As Filed	Docket	Report Reference	Effective Date
CIG-DR	E-2, Sub 953	2017 EM&V Report for the Duke Energy Progress Commercial, Industrial, and Governmental Demand Response Automation (DRA) Program	5/1/2018
Residential New Construction	E-2, Sub 1021	EM&V Report for the Residential New Construction Program Years: 2015-2016	1/1/2016
EnergyWise	E-2, Sub 927	EM&V Report for the EnergyWise Home Program Winter 2017/2018	8/6/2018
Small Business Energy Saver	E-2, Sub 1022	EM&V Report for the Small Business Energy Saver Program Duke Energy Progress and Duke Energy Carolinas	7/1/2017
Residential Energy Assessment	E-2, Sub 1094	Duke Energy Progress Residential Energy Assessments Program Evaluation Report - Final	4/1/2016
EnergyWise for Business	E-2, Sub 1086	Duke Energy Carolinas and Progress EnergyWise Business Evaluation Report - Final	1/1/2018
Non-Residential Smart Saver	E-2, Sub 938	Smart Saver [®] Non-Residential Custom Program Years 2016-2017 Evaluation Report	12/1/2018
EnergyWise	E-2, Sub 937	EM&V Report for the EnergyWise Home Demand Response Program Summer PV2018	11/30/2018
Energy Efficiency in Education	E-2, Sub 1060	Energy Efficiency Education in Schools Program Year: 2017 - 2018 Evaluation Report	8/1/2018

I/A

DE Progress DSM Opt Out at December 31, 2018
North Carolina (excludes outdoor lighting)

Customer Name	DSM
1922 SKIBO CROSS CREEK LLC	1
3141 PROPERTIES LLC	1
333 VENTURES LLC	2
3700 GLENWOOD LLC	1
4208 SIX FORKS ROAD LLC	2
5400 RALEIGH CRABTREE KKC	1
81ST REGIONAL SUPPT COMMAND	1
A STUCKI COMPANY	1
ABB MOTORS AND MECHANICAL INC	1
ADVANCED PLASTIC EXTRUSION LLC	2
AG PROVISION LLC	3
AIR SYSTEM COMPONENTS INC	1
AJINOMOTO USA INC	3
ALAMAC AMERICAN KNITS LLC	2
ALBANY ROAD-WYCLIFF LLC	2
ALCAMI CAROLINAS CORPORATION	5
ALL TRUSS LLC	1
ALLEN HARIM FOODS LLC	1
ALPLA INC	1
AMCOR FLEXIBLES INC	1
AMCOR RIGID PLASTICS USA LLC	1
AMERICAN AIRLINES GROUP INC	1
AMERICAN GROWLER INC	2
AMERICAN SKIN COMPANY INC	1
AMERICAN TEL & TEL CO	1
AMERICHEM INC	3
AMISUB OF NORTH CAROLINA INC	1
ANGUS BARN LTD	6
ANSON COUNTY WATER DEPT	1
ANSON COUNTY WTR SYSTEM	1
ANSON MACHINE WORKS	4
APAC TENNESSEE INC	3
APEX OIL CO INC/TERMINALS DIVI	5
APEX TOOL GROUP LLC	2
ARAUCO PANELS USA LLC	4
ARCADIA FARMS LLC	2
ARCHER DANIELS MIDLAND CO	1
ARCLIN USA INC	6
ARDAGH GLASS INC	3
ARDEN CORPORATION	3
ASHEBORO CITY OF	3
ASHEBORO ELASTICS CORP	2
ASHEVILLE BUNCOMBE TECH	22

ASHEVILLE CITY OF	8
ASHEVILLE WASTE PAPER CO INC	5
ASTON PARK HEALTH CARE CENTER	1
AT & T MOBILITY	3
AT HOME STORES LLC	2
ATEX TECHNOLOGIES INC	2
ATLANTIC CORP OF WILM INC	7
ATLANTIC VENEER CORP	3
ATLAS PRECISION INC	1
AUSTIN QUALITY FOODS INC	2
AUX KITCHEN LLC	1
B V HEDRICK GRAVEL & SAND CO	9
BAILEY FARMS INC	1
BALCRANK CORPORATION	1
BALLY REFRIGERATED BOXES INC	2
BARNES FARMING CORPORATION	8
BARNHARDT MFG CO	1
BARTLETT MILLING CO	2
BB&T	3
BEAR CREEK ARSENAL, INC	5
BELK INC	7
BELLSOUTH TELECOMMUNICATIONS	13
BELT CONCEPTS OF AMERICA	1
BI-LO LLC	1
BILTMORE BAPTIST CHURCH	1
BILTMORE FARMS HOTEL GRP LLC	3
BILTMORE FOREST CNTRY CLUB INC	5
BJ'S WHOLESALE CLUB INC	8
BLACK MTN CENTER	6
BLUE RIDGE METALS CORP	3
BLUE RIDGE PAPER PRODUCTS INC	29
BOISE CASCADE WOOD PRDCTS LLC	7
BOLIVIA LUMBER CO LLC	2
BONSAL AMERICAN INC	1
BORG WARNER TURBO SYSTEMS INC	2
BORGWARNER THERMAL SYSTEMS INC	1
BP SOLUTIONS GROUP INC	2
BRAIFORM ENTERPRISES INC	1
BRIDGESTONE BANDAG LLC	7
BRIER CREEK OFF #6 LLC	1
BRIER CREEK OFFICE # 1 LLC	1
BRIER CREEK OFFICE # 2 LLC	1
BRIER CREEK OFFICE # 5 LLC	1
BRIER CREEK OFFICE #4 LLC	1

BRM PARTNERS II LLC	1
BRM PARTNERS LLC	1
BROMLEY PLASTICS CORPORATION	1
BROOKS HOWELL RETIREMENT HOME	3
BROOKWOOD FARMS INC	5
BRUNSWICK CO	1
BRUNSWICK CO UTILITIES	1
BRUNSWICK COUNTY SCHOOLS	18
BSH HOME APPLIANCES	5
BUNCOMBE CO BD OF EDUCATION	2
BUNCOMBE COUNTY	2
BURCAM CAPITAL II LLC	1
BURLINGTON INDUSTRIES LLC	2
BUSINESS TELECOM LLC	2
CAMP DAVIS INDUSTRIAL PARK INC	6
CAMPBELL SOUP SUPPLY CO LLC	5
CAMPBELL UNIVERSITY INC	66
CAN AM SOUTH LLC	2
CANTON SAWMILL LLC	7
CAPE FEAR ACADEMY	2
CAPE FEAR COMMUNITY COLLEGE	30
CAPE FEAR COUNTRY CLUB	7
CAPE FEAR PUBLIC UTILITY AUTH	5
CAPEL INC	6
CAPITAL FUNDS INC	2
CAPITOL BROADCASTING CO	13
CARDINAL METALWORKS INC	2
CARLIE C OPERATION CENTER INC	7
CAROLINA APPAREL GROUP INC	1
CAROLINA BAY OF WILMINGTON LLC	5
CAROLINA BEACH TOWN OF	2
CAROLINA COUNTRY CLUB	3
CAROLINA CRATE & PALLET INC	3
CAROLINA DAIRY LLC	2
CAROLINA EGG CO INC	1
CAROLINA ELECTRONIC ASSEMBLERS	1
CAROLINA EYE ASSOCIATES PA	1
CAROLINA ICE INC	4
CAROLINA INNOVATIVE FOOD INGRE	3
CAROLINA PRESERVE BY DEL WEBB	4
CAROLINA TECHNICAL PLASTICS	3
CARQUEST OF SRONCE	2
CARTERET CO BD OF ED	5
CARTERET COMMUNITY COLLEGE	18

DE Progress DSM Opt Out at December 31, 2018
North Carolina (excludes outdoor lighting)

CARTERET COUNTY FINANCE	1
CARTERET GENERAL HOSPITAL	0
CARY TOWN OF	19
CARY VENTURE LTD PRTRNSHIP	14
CASCADES HOLDING US INC	5
CASE FARMS	8
CATALENT PHARMA SOLUTIONS LLC	16
CATERPILLAR INC	11
CECIL BUDD TIRE COMPANY LLC	3
CERTAINTED CORPORATION	4
CERTAINTED GYPSUM NC INC	3
CERTAINTED INC	1
CFVH - BLADEN HEALTHCARE	11
CHARTER COMMUNICATIONS INC	1
CHATHAM CO	1
CHATHAM CO BOARD OF EDUCATION	21
CHATHAM HOSPITAL INC	3
CITRIX SYSTEMS INC	0
CITY OF HENDERSON	2
CITY OF RALEIGH PARKS REC DEPT	9
CLIFFORD W ESTES CO INC	3
CLINTON CITY BD OF ED	8
CLINTON CITY OF	3
CLOVERLEAF COLD STORAGE CO	1
CMC CORPORATION	3
CMS FOOD SOLUTIONS INC	1
COAST LAMP MANUFACTORY	2
COASTAL CAR COMM COLL RES BLD	1
COASTAL CAROLINA COMM COLLEGE	13
COASTAL FEDERAL CREDIT UNION	1
COATINGS AND ADHESIVES CORP	7
COBB VANTRESS INC	1
COKER FEED MILL INC	1
COLONIAL CARTON CO	1
COLUMBUS COUNTY SCHOOLS	11
COLUMBUS REG HEALTHCARE SYSTEM	3
COMFORT TECH INC	1
COMPUTER DESIGN INC	1
CONESTOGA WOOD SPECIALTIES	2
CONSOLIDATED METCO INC	2
CONVEYOR TECHNOLOGIES OF SANFO	4
COOPER INDUSTRIES INC	2
COOPER-STANDARD AUTOMOTIVE INC	2
CORE-MARK DISTRIBUTORS INC	2

DE Progress DSM Opt Out at December 31, 2018
North Carolina (excludes outdoor lighting)

Evans Exhibit 9A
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CORNELIA NIXON DAVIS INC	5
CORNELIA NIXON DAVIS NURSING	1
CORNING INC	3
CORTEK	4
COSTCO	4
COTTLE STRAWBERRY NURSERY INC	8
COTY US LLC	6
COUNCIL TOOL CO INC	4
COUNTRY CLUB OF LANDFALL	17
COUNTY OF WAYNE	1
COURTYARD BY MARRIOTT	2
COVIA HOLDINGS CORPORATION	6
CPI USA NORTH CAROLINA LLC	1
CRAVEN CO BD OF ED	13
CRAVEN CO JUSTICE CENTER	2
CRAWFORD KNITTING INC	1
CROP PRODUCTION SERVICES INC	1
CROSS CANVAS COMPANY INC	3
CRUMPLER PLASTIC PIPE INC	8
CSX TRANSPORTATION	2
CTC FURNITURE DISTRIBUTORS INC	1
CUMBERLAND CO BD ED	5
DAK AMERICAS LLC	3
DALIAH PLASTICS CORP	4
DAY INTERNATIONAL INC	2
DCI INC	1
DEERFIELD EPISCOPAL RETIREMENT	18
DENNISON, WYNDHAM V	1
DEPT OF HEALTH & HUMAN RESOURC	34
DESCO INDUSTRIES INC	4
DEVIL DOG MFG CO INC	2
DEWEY DEVELOPMENT INC	1
DIXIE PIPELINE COMPANY	4
DRPFC I LLC	5
DUKE UNIV HEALTH SYSTEM INC	26
DUKE UNIVERSITY MARINE LAB	1
DUNN CITY OF	2
DUPLIN CO BD OF ED	7
DUPLIN GENERAL HOSP	3
DUPONT SPECIALTY PRODUCTS	10
DYNAPAR CORP	3
E CAROLINA METAL TREATING INC	2
EAGLE SPORTSWEAR LLC	4
EARTH FARE INC	4

EATON CORPORATION	8
EDWARDS BROTHERS INC	2
EDWARDS WOOD PRODUCTS INC	6
ELAND INDUSTRIES INC	1
ELASTIC THERAPY INC	1
ELECTRO SWITCH CORPORATION	1
ELEMENTIS CHROMIUM INC	4
ELKAY SOUTHERN PLANT 2	1
ELKINS SAWMILL INC	3
EMC CORPORATION	4
EMERGEORHTO PA	2
EMERSON AUTOMATION SOLUTIONS	3
ENERGIZER BATTERY MANUFACTURIN	3
ENTERCO LLC	1
ENVIVA PELLETS SAMPSON LLC	1
ENVIVA PORT OF WILMINGTON, LLC	4
EOS ACQUISITION I LLC	1
ERICO INC	1
EVERGREEN PACKAGING INC	4
EXTREME NETWORKS INC	1
FAYETTEVILLE TECH COMM COLL	2
FCC (NC) LLC	1
FENNER DRIVES	1
FIRST BAPTIST CH OF ASHE INC	1
FIRST CITIZENS BANK	1
FIRST CITIZENS BANK & TRUST CO	5
FIRSTHEALTH OF THE CAROLINAS	43
FLETCHER BUSINESS PARK LLC	1
FLETCHER HOSPITALITY, LLC	1
FLOCO FOODS INC	2
FLOWSERVE US INC	1
FLYING J INC	1
FOOD LION LLC	167
FORTRON INDUSTRIES LLC	1
FOUNTAIN POWER BOATS INC	5
FOUR SEASONS MNGMT SVCS INC	6
FRANK THEATRES PARKSIDE COMMON	1
FRANKLIN BAKING COMPANY LLC	7
FRANKLIN COUNTY SCHOOLS	5
FRATERNITY/SORORITY LIFE	4
FRESH BUY INC	2
FRESH FOODS LLC	5
FUJIFILM DIOSYNTH BIOTEC USA	1
FUQUAY-VARINA TOWN OF	1

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GALE FORCE SPORTS & ENTERTAIN	13
GALLOWAY RIDGE INC	17
GENERAL ELECTRIC CO	2
GENERAL INDUSTRIES INC	5
GENERAL PARTS DIST LLC	1
GENERAL SHALE BRICK INC	8
GENERAL TIMBER INC	4
GEORGIA PACIFIC WOOD PROD LLC	1
GEORGIA-PACIFIC CORP	2
GH CRESCENT GREEN INC	1
GIBRALTAR PACKAGING GROUP INC	4
GILDAN YARNS LLC	1
GIVENS ESTATES INC	12
GIVENS HIGHLAND FARMS LLC	11
GKN DRIVELINE N AMERICA INC	4
GLAXOSMITHKLINE	9
GLEN RAVEN MILLS INC	1
GLENWOOD ASSET MANAGEMENT LLC	1
GLENWOOD HOSPITALITY ASSOC LLC	1
GLENWOOD PLACE VENTURES LLC	1
GLOBAL PACKAGING INC	1
GODWIN MFG CO INC	14
GOLDSBORO CITY OF	2
GOLDSBORO HOUSING AUTHORITY	3
GOLDSBORO MILLING CO	13
GRANITE FALLS SWIM/ATHL CLUB	2
GREATER ASHEVILLE REG AIRPORT	1
GREDE II LLC	3
GREENE COUNTY MANAGER	1
GRIFOLS THERAPEUTICS LLC	4
H & H FURNITURE MFG INC	3
HALIFAX MEDIA HOLDINGS LLC	4
HANESBRANDS INC	2
HANSON AGGREGATES SE LLC	33
HANSON BRICK EAST LLC	1
HAPPY JACK INC	1
HARDEN ROAD ASSOCIATES	1
HARGER LIGHTNING & GROUNDING	1
HARNETT CO BD OF ED	24
HARNETT CO PUBLIC UTIL	9
HARNETT CO SHERIFF OFFICE	1
HARNETT HEALTH SYSTEM INC	19
HARRIS PRINTING CO INC	3
HARRIS TEETER INC	30

HASTY PLYWOOD CO	3
HAVELOCK CITY OF	1
HAYWOOD COUNTY LOCAL GOV	1
HAYWOOD REGIONAL MEDICAL CNTR	6
HCL AMERICA INC	1
HEATMASTERS LLC	3
HERAEUS QUARTZTECH AMERICA LLC	1
HEXION INC	2
HIGHWOODS JOINT VENTURE	1
HIGHWOODS REALTY LP	26
HJH ASSOCIATES	1
HOG SLAT INC	9
HOLLY SPRINGS TOWN OF	1
HOME CARE PRODUCTS LLC	1
HOME DEPOT USA INC	9
HOPE COMMUNITY CHURH OF NC INC	2
HORNWOOD INC	3
HOUSE OF RAEFORD FARMS INC	14
HOUSING AUTH CITY OF RALEIGH	2
HUGHES FURNITURE INDUSTRIE INC	1
HULSING HOTELS INC	13
HUVEPHARMA INC	1
HYDRO TUBE ENTERPRISES INC	1
IAC TROY LLC	1
IMMEDIION LLC	
INGERSOLL-RAND	1
INGLES MARKETS INC	84
INN ON BILTMORE ESTATE INC	1
INNOVATIVE LAMINATIONS CO	1
INTERNATIONAL BROADCAST BUREAU	1
INTERNATIONAL PAPER COMPANY	6
INVISTA S A R L	1
J & D WOOD INC	3
J A MCNEILL & SONS	1
J C HOWARD FARMS LLC	8
J P TAYLOR COMPANY LLC	4
J&J SNACK FOODS HANDHELDS CORP	2
JACKSONVILLE CITY OF	4
JACOB HOLM IND AMERICA INC	1
JOHN DEERE TURF CARE INC	3
JOHNSTON CO BOARD OF EDUCATION	77
JOHNSTON CO PUBLIC UTILITIES	2
JOHNSTON MEM HOSPITAL AUTH	1
JORDAN LUMBER & SUPPLY INC	14

JOVC FOOD CORP INC	1
KAYSER-ROTH HOSIERY INC	4
KENNAMETAL INC	2
KESSLER ASHEVILLE LLC	1
K-FLEX USA LLC	9
KILELEE, KATHRYN	1
KING CHARLES INDUSTRIES LLC	1
KINGS HOLDINGS 4,LLC	1
KINGSLAND REALTY LLC	1
KLAUSSNER FURN IND INC	24
KOOPMAN DAIRIES INC	4
KORDSA INC	2
KROGER COMPANY	3
KRYOCAL, LLC	3
LAKE JUNALUSKA ASSEMBLY INC	51
LANCER INC	4
LAZAR INDUSTRIES LLC	4
LCNRC OF COLUMBUS CO LLC	2
LEAR CORPORATION	3
LEE BRICK & TILE COMPANY	7
LEE COUNTY COURT HOUSE	2
LEE IRON & METAL CO	3
LENOVO INTERNATIONAL	1
LEWIS SAUSAGE CO INC	1
LIBERTY COMMONS WARREN CO LLC	1
LIBERTY HEALTHCARE SERVICES	3
LIFEWAY CHRISTIAN RESOURCES OF	41
LINAMAR NORTH CAROLINA INC	4
LINPRINT CO	1
LIVE OAK BANKING COMPANY	2
LOCAL GOVERNMENT FED CREDIT UN	1
LORD CORPORATION	2
LOUISBURG COLLEGE INC	12
LOUISE WELLS CAMERON ART MUSEU	4
LOUISIANA PACIFIC CORP	4
LOW & BONAR INC	1
LOWER CAPE FEAR WATER & SEWER	0
LOWES COMPANIES INC	34
LOWES FOODS LLC	25
LUMBERTON CELLULOSE LLC	4
M ADLER'S SON, INC	1
MAGNETI MARELLI USA INC	4
MANHATTEN AMERICAN	1
MANUFACTURING METHODS, LLC	1

MARS PETCARE US, INC	7
MARTIN MARIETTA MATERIALS INC	59
MAS US HOLDINGS INC	3
MAY FURNITURE INC	3
MCDOWELL LUMBER CO INC	11
MCGILL ENVIRONMENTAL SYS OF NC	1
MCLAMBS ABATTOIR AND MEATS INC	1
MCMURRAY FABRICS INC	7
MEASUREMENTS GROUP INC	4
MEDICAL ACTION INDUSTRIES INC	1
MEDICAL SPECIALTIES INC	1
MEMORIAL MISSION HOSPITAL INC	1
MEREDITH COLLEGE	6
MERITOR HEAVY VEHICLE SYS LLC	2
MERTEK SOLUTIONS INC	1
METAL-CAD & STEEL FRAMING	1
METCHEM, LLC	1
METROPOLITAN SEWAGE DISTRICT	5
MHG ASHEVILLE AL LP	1
MICROSPACE COMM CORP	1
MILKCO INC	4
MINE SAFETY APPL CO INC	1
MISSION HEALTH SYSTEM INC	16
MISSION ST JOSEPH HEALTH SYS	1
MISSION ST JOSEPH HOSPITAL	1
MITCHELL CO BD OF ED	2
MMIC-TL INC PARTNERS LLC	1
MOEN INC	4
MONTGOMERY COUNTY OF	2
MOORE COUNTY	1
MOORE COUNTY SCHOOLS	18
MOORE'S INLET LIMITED PRTRNSHP	1
MOUNTAIRE FARMS INC	21
MT OLIVE PICKLE CO	16
MULE CITY SPEC FEED INC	2
MURPHY BROWN LLC	1
N C TELEVISION INC	1
N RALEIGH CHRISTIAN ACADEMY	2
N RALEIGH MEDICAL REALTY LLC	1
NASH BRICK CO INC	2
NASH COMMUNITY COLLEGE	8
NASH COUNTY	1
NASH COUNTY MANAGERS OFFICE	1
NASH ROCKY MOUNT BD OF ED	23

NATIONAL SPINNING CO INC	5
NATIONAL WIPER ALLIANCE INC	1
NATURAL BLEND VEG DEHYDR LLC	1
NATURES EARTH PELLETS INC LLC	3
NATURES WAY FARMS INC	1
NC AQUARIUM	3
NC DEPT OF AGRICULTURE	3
NC DEPT OF PUBLIC SAFETY	48
NC FARM BUREAU FEDERATION	1
NC RENEWABLE PWR LUMBERTON LLC	5
NC STATE FAIRGROUNDS	5
NC STATE PORTS AUTH	13
NC STATE PORTS AUTHORITY	26
NC STATE UNIVERSITY	143
NC STATE VETERANS HOME	2
NC WILDLIFE COMMISSION	1
NESBITT ASHEVILLE VENTURE LLC	2
NEW BELGIUM BREWING CO INC	1
NEW HANOVER CO BD OF ED	45
NEW HANOVER REGIONAL MED CTR	32
NG PURVIS FARMS INC	3
NHC PROPERTY MANAGEMENT	3
NOBLE OIL SERVICES	4
NOMACO INC	3
NOMACORC LLC	3
NORCRAFT COMPANIES LP	2
NORTH CAROLINA MFG CO INC	1
NORTH HILLS TOWER II LLC	3
NORTH STATE TECH SOLUTIONS	
NOVIPAX LLC	4
NOVO NORDISK PHARMACUTICAL INC	4
NOVOZYMES NORTH AMERICA INC	6
NYPRO ASHEVILLE INC	2
OFFICE OF INFOR TECH SVCS	4
OHM HOTELS RTP, LLC	1
OLDCASTLE LAWN & GARDEN INC	5
OLIVER RUBBER COMPANY	2
OMNI GROVE PARK LLC	21
ONSLow CO BD OF COMM	2
ONSLow CO BD OF EDUC	23
ONSLow MEMORIAL HOSPITAL AUTH	2
ONSLow WATER AND SEWER AUTH	5
ORACLE AMERICA, INC	1
OWENS & MINOR	1

OXFORD CITY OF	1
P G & C INC	2
PACTIV LLC	1
PAK A SAK FOOD STORES	1
PALLET EXPRESS, INC	5
PALZIV NORTH AMERICA INC	1
PAPA JOHNS USA INC	1
PARADIGM ANALYTICAL	1
PARK COMMUNICATIONS LLC	2
PARK N SHOP FOOD MART INC	6
PARKDALE AMERICA LLC	2
PARRISH & RONE INC	1
PCS PHOSPHATE CO INC	2
PEAK 10 INC	3
PENDER CO BD OF ED	17
PENDER MEMORIAL HOSPITAL INC	7
PENICK VILLAGE INC	13
PENTAIR WATER POOL AND SPA INC	10
PEPSI BOTTLING VENTURES LLC	6
PERDUE FARMS INC	23
PERSON CO BD OF ED	2
PETROLEUM TANK CO	2
PFIZER INC	11
PH HS LLC	1
PHOENIX LTD PARTNERSHIP	1
PIEDMONT NATURAL GAS	1
PIEDMONT NATURAL GAS CO	1
PILGRIMS PRIDE CORPORATION	11
PILKINGTON	1
PINEHURST LLC	84
PINEHURST MEDICAL CLINIC	1
PIONEER HI BRED INC	4
PLASTEK IND INC (PA) NC	3
PLASTICARD PRODUCTS INC	1
POLYMER GROUP INC	3
POLYZEN INC	1
PORT CITY COMMUNITY CHURCH	3
PR II WADE PARK LLC	3
PRAXAIR INC	2
PRC NC LLC	2
PRECISION HYDRAULIC CYL INC	4
PRECISIONAIRE INC	3
PREMIERE FIBERS INC	4
PRESTAGE AGENERGY OF NC LLC	2

PRESTAGE FARMS INC	35
PRESTIGE FABRICATORS INC	3
PRESTON TAYLOR FOOD INC	1
PRINTLOGIC LLC	2
PRO PALLET SOUTH INC	1
PROTO LABS INC	1
PSNC ENERGY	1
PUBLIC SCHOOLS OF ROBESON CO	1
PUBLIX NORTH CAROLINA LP	3
QUAIL HAVEN OF PINEHURST LLC	1
QUALCOMM INC	1
QUALITY CHEMICAL LABORATRS LLC	2
QUALITY TEXTILE SERVICES INC	1
RAEFORD CITY OF	1
RAILROAD FRICTION PRODUCT CORP	4
RALEIGH CITY OF	6
RALEIGH FITNESS & WELLNESS	1
RALEIGH HOTEL OPERATOR INC	1
RALEIGH PRECISION PRODUCTS INC	0
RANDOLPH COUNTY	9
RAVEN ANTENNA SYSTEMS INC	1
RC CREATIONS, LLC	2
RD AMERICA LLC	1
RDU AIRPORT AUTHORITY	6
RED HAT INC	1
RED WOLF COMPANY, LLC	1
REDDY ICE CORP	2
REGAL CINEMAS	3
REGAL ENTERTAINMENT GROUP	4
REICH LLC	2
RESINART EAST INC	1
REVLON CONSUMER PRODUCTS CORP	3
REX HEALTH CARE INC	14
REX MOB PARTNERS LLC	1
RHEINFELDEN AMERICAS LLC	1
RICHMOND COUNTY	1
RICHMOND COUNTY BOARD OF COMM	2
RICHMOND COUNTY SCHOOLS	2
RICHMOND SPECIALTY YARNS LLC	2
RIDGECREST CONFERENCE CENTER	1
ROBESON COUNTY DSS	1
ROCKINGHAM CITY OF	9
RODECO CO	2
ROYAL TEXTILE MILLS INC	1

RUBY'S PROPERTIES II LLC	1
S AND J HOLDINGS LLC	1
S B SMITH & SON INC	4
S T & F PRECISION INC	1
S T WOOTEN CORPORATION	17
SAAB BARRACUDA LLC	6
SAINT JOSEPH OF THE PINES INC	21
SAMPSON REGIONAL MEDICAL CTR	3
SANDERSON FARMS INC	7
SANDHILLS COMM COLLEGE	12
SANFORD CITY OF	4
SANFORD LEE CO BD OF ED	40
SANFORD MILLING CO INC	2
SAPONA MFG CO INC	2
SAS INSTITUTE INC	26
SCHINDLER ELEVATOR CORP	2
SCOTLAND CONTAINER INC	2
SCOTLAND MANUFACTURING	1
SEPARATION TECHNOLOGIES LLC	2
SEQIRUS INC	1
SIBELCO NORTH AMERICA INCORPOR	45
SIGMA PHI EPSILON	1
SILAR LABORATORIES, INC.	1
SILER CITY TOWN OF	2
SILVER LINE PLASTICS CORP	11
SINCLAIR BROADCAST GROUP INC	1
SIX FORKS OFFICE, LLC	3
SKYLAND BEER DIST	3
SMITHFIELD FRESH MEATS	6
SMOKY MOUNTAIN MACHINING INC	3
SNEEDEN, NORMAN E	2
SNUG HARBOR MANAGEMENT LLC	1
SONOCO PRODUCTS CO	1
SOUTH RIVER EMC COMM ASST CORP	1
SOUTHCO INC OF NC	1
SOUTHEASTERN REGIONAL MED CTR	4
SOUTHERN BAG CORP	1
SOUTHERN CONCRETE MATERIAL INC	14
SOUTHERN FABRICATORS INC	4
SOUTHERN PINES TOWN OF	2
SOUTHERN PRODUCE DIST INC DIP	3
SOUTHERN PRODUCTS & SILICA CO	6
SOUTHERN STATES CHEMICAL INC	3
SPANSET INC	1

SPECGX LLC	13
SPIRIT AEROSYSTEMS INC	2
SPORTS FACTORY LLC	2
SPX FLOW TECHNOLOGY SYSTEMS	1
ST ANDREWS PRESBYTERIAN COLL	1
ST. DAVIDS SCHOOL	7
STAN JOHNSON & ASSOCIATES LLC	2
STANADYNE INC	2
STARPET INC	6
STATIC CONTROL COMP INC	11
STEEL & PIPE CORP	2
STEVEN ROBERTS ORIGINAL	2
STI POLYMER INC	1
SUMITOMO ELECTRIC LIGHTWAVE CO	1
SUN LIFE ASSURANCE CO OF CANAD	1
SUNBRIDGE REGENCY NC LLC	2
SUNRISE SENIOR LIVING	1
SUPERIOR MODULAR PRODUCT INC	1
SUPERIOR PLASTICS EXTRUSION	1
SUPERTEX, INC	4
SURGERY CENTER OF PINEHURST	1
SURGICAL CARE AFFILIATES	1
SURTRONICS	2
SVT VENTURES LP	4
SYRACUSE PLASTIC OF NC INC	1
TALBERT BUILDING SUPPLY INC	1
TARGET STORES	18
TCDC PARTNERSHIP, LLC	2
TE CONNECTIVITY CORPORATION	2
THE ATRIUM AT BLUE RIDGE, LLC	1
THE BILTMORE COMPANY	3
THE CHEESECAKE FACTORY	1
THE CHEMOURS COMPANY FC, LLC	8
THE COUNTRY CLUB OF NC INC	1
THE CYPRESS OF RALEIGH	7
THE HARRELSON BUILDING INC	1
THE NEWS REPORTER CO INC	1
THE QUARTZ CORP USA	17
THE UMSTEAD	1
THEO DAVIS SONS INC	1
THERMAL METAL TREATING INC	1
THERMOFISHER SCI ASHEVILLE LLC	1
TIERPOINT LLC	3
TIME WARNER CABLE SE LLC	4

TIPPER TIE INC	3
TOP TOBACCO CO	3
TOWN SQUARE WEST LLC	7
TRAM LUMBER LLC	3
TRAMWAY VENEERS INC	1
TRANS CAROLINA PRODUCTS LLC	1
TREEHOUSE FOODS INC	6
TRIANGLE AQUATIC CENTER	1
TRIANGLE BRICK CO	6
TRIANGLE TOWN CENTER, LLC	22
TRINITY MANUFACTURING INC	6
TROTTERS SEWING COMPANY INC	1
TROY LUMBER CO	16
TROY POLYMER INC	1
TUCSON CARY, LLC	1
TURN BULL LUMBER COMPANY	1
TYCO ELECTRONICS	1
TYSON FOODS INC	3
U S REIF 4700 FALLS NC LLC	1
UCHIYAMA MANUF AMERICA LLC	3
UNC AT ASHEVILLE	8
UNC INSTITUTE OF MARINE SCI	3
UNC PUBLIC TV OF NC	1
UNCW	18
UNILEVER MANUFACTURING US INC	6
UNILIN NORTH AMERICA LLC	4
UNILIN US MDF	3
UNISON ENGINE COMPONENTS INC	4
UNITED STATES COLD STORAGE INC	6
UNITED STATES GYPSUM CO	1
UNIVERSAL HEALTHCARE N RAL INC	1
UNIVERSAL LEAF NORTH AMERICA	3
UNIVERSITY OF NC AT PEMBROKE	16
UNIVERSITY RESEARCH UNIT	1
US ARMY	1
US ARMY FORT BRAGG	3
US DEPT OF AIR FORCE	1
US FLUE CURED TOBACCO GROWERS	1
US MARINE CORP	1
US MARINE CORPS	1
US POST OFFICE	2
US VETERANS ADMIN HOSPITAL	3
USCG FINANCE CENTER	7
USS NC BATTLESHIP COMM	2

UWHARRIE FRAME MFG LLC	2
UWHARRIE LUMBER CO	3
VALLEY PROTEINS INC	15
VANDERBILT MINERALS LLC	4
VANGUARD CULINARY GROUP LTD	1
VENEER TECHNOLOGIES INC	7
VERTEX RAILCAR CORPORATION	2
VICTAULIC CO OF AMERICA	2
VILLARI BROS FOODS LLC	1
VONDREHLE CORP	6
VULCAN CONST MATERIALS LP	18
W N WILDER CO INC	1
WADESBORO IGA INC	1
WAKE CO HOSP SYSTEM INC	4
WAKE COUNTY BOARD OF EDUCATION	190
WAKE COUNTY GENERAL SERVICES	15
WAKE STONE CORP	17
WAKEMED	6
WAKEMED FACILITIES SVC	2
WAKEMED PROPERTY SERVICES	15
WAL MART PDC #6091	4
WALMART STORES INC	76
WALNUT CREEK AMPHITHEATER	5
WARP TECHNOLOGIES INC	1
WARREN CO BD OF ED	5
WAYNE BAILEY INC	2
WAYNE CO PUBLIC SCHOOLS	1
WAYNE COMMUNITY COLLEGE	1
WAYNE COUNTY	4
WAYNE MEMORIAL HOSPITAL INC	9
WAYNESVILLE TOWN OF	1
WELLS FARGO BANK NA	2
WEST CRAVEN HIGH SCHOOL	3
WEST CRAVEN MIDDLE SCHOOL	1
WEST FRASER INC	5
WESTERN NC HEALTHCARE INNO III	1
WESTERN NC HEALTHCARE INNO LLC	1
WEYERHAEUSER NR COMPANY	5
WHITEVILLE FABRICS LLC	4
WILLIAM BARNET & SON INC	5
WILLIAMS PROPERTY GROUP INC	1
WILMINGTON CITY OF	1
WILMINGTON HOTEL ASSOC CORP	2
WILMINGTON INTL AIRPORT	8

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WILMINGTON MACHINERY INC	1
WILSONART INTERNATIONAL	4
WNC PALLET & FOREST PRDCTS INC	0
WRDC LLC	1
WRIGHT FOODS INC	2
WRIGHT MACHINE & TOOL CO INC	1
XELLIA PHARMACEUTICALS USA LLC	1
YALE INDUSTRIAL PRODUCTS INC	1
YAMCO LLC	1
YMCA OF WESTERN NORTH CAROLINA	2
Grand Total	4,354

I/A

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Customer Name	EE
1922 SKIBO CROSS CREEK LLC	1
3141 PROPERTIES LLC	1
333 VENTURES LLC	2
3700 GLENWOOD LLC	1
4208 SIX FORKS ROAD LLC	2
5400 RALEIGH CRABTREE KKC	1
81ST REGIONAL SUPPT COMMAND	1
A STUCKI COMPANY	1
ABB MOTORS AND MECHANICAL INC	1
ADVANCED PLASTIC EXTRUSION LLC	2
AG PROVISION LLC	3
AIR SYSTEM COMPONENTS INC	1
AJINOMOTO USA INC	3
ALAMAC AMERICAN KNITS LLC	2
ALBANY ROAD-WYCLIFF LLC	2
ALCAMI CAROLINAS CORPORATION	4
ALL TRUSS LLC	1
ALLEN HARIM FOODS LLC	1
ALPLA INC	1
AMCOR FLEXIBLES INC	1
AMCOR RIGID PLASTICS USA LLC	1
AMERICAN AIRLINES GROUP INC	1
AMERICAN GROWLER INC	2
AMERICAN SKIN COMPANY INC	1
AMERICAN TEL & TEL CO	1
AMERICHEM INC	3
AMISUB OF NORTH CAROLINA INC	1
ANGUS BARN LTD	6
ANSON COUNTY WATER DEPT	1
ANSON COUNTY WTR SYSTEM	1
ANSON MACHINE WORKS	4
APAC TENNESSEE INC	3
APEX OIL CO INC/TERMINALS DIVI	5
APEX TOOL GROUP LLC	2
ARAUCO PANELS USA LLC	4
ARCADIA FARMS LLC	2
ARCHER DANIELS MIDLAND CO	1
ARCLIN USA INC	6
ARDAGH GLASS INC	3
ARDEN CORPORATION	3
ASHEBORO CITY OF	3
ASHEBORO ELASTICS CORP	2

ASHEVILLE BUNCOMBE TECH	22
ASHEVILLE CITY OF	7
ASHEVILLE WASTE PAPER CO INC	5
ASTON PARK HEALTH CARE CENTER	1
AT & T MOBILITY	3
AT HOME STORES LLC	2
ATEX TECHNOLOGIES INC	2
ATLANTIC CORP OF WILM INC	7
ATLANTIC VENEER CORP	3
ATLAS PRECISION INC	1
AUSTIN QUALITY FOODS INC	2
AUX KITCHEN LLC	1
B V HEDRICK GRAVEL & SAND CO	9
BAILEY FARMS INC	1
BALCRANK CORPORATION	1
BALLY REFRIGERATED BOXES INC	2
BARNES FARMING CORPORATION	8
BARNHARDT MFG CO	1
BARTLETT MILLING CO	2
BB&T	3
BEAR CREEK ARSENAL, INC	5
BELK INC	6
BELLSOUTH TELECOMMUNICATIONS	12
BELT CONCEPTS OF AMERICA	1
BI-LO LLC	1
BILTMORE BAPTIST CHURCH	1
BILTMORE FARMS HOTEL GRP LLC	3
BILTMORE FOREST CNTRY CLUB INC	5
BJ'S WHOLESALE CLUB INC	8
BLACK MTN CENTER	6
BLUE RIDGE METALS CORP	3
BLUE RIDGE PAPER PRODUCTS INC	29
BOISE CASCADE WOOD PRDCTS LLC	7
BOLIVIA LUMBER CO LLC	2
BONSAL AMERICAN INC	1
BORG WARNER TURBO SYSTEMS INC	2
BORGWARNER THERMAL SYSTEMS INC	1
BP SOLUTIONS GROUP INC	2
BRAIFORM ENTERPRISES INC	1
BRIDGESTONE BANDAG LLC	7
BRIER CREEK OFF #6 LLC	1
BRIER CREEK OFFICE # 1 LLC	1
BRIER CREEK OFFICE # 2 LLC	1

BRIER CREEK OFFICE # 5 LLC	1
BRIER CREEK OFFICE #4 LLC	1
BRM PARTNERS II LLC	1
BRM PARTNERS LLC	1
BROMLEY PLASTICS CORPORATION	1
BROOKS HOWELL RETIREMENT HOME	3
BROOKWOOD FARMS INC	5
BRUNSWICK CO	1
BRUNSWICK CO UTILITIES	1
BRUNSWICK COUNTY SCHOOLS	18
BSH HOME APPLIANCES	5
BUNCOMBE CO BD OF EDUCATION	0
BUNCOMBE COUNTY	0
BURCAM CAPITAL II LLC	1
BURLINGTON INDUSTRIES LLC	2
BUSINESS TELECOM LLC	2
CAMP DAVIS INDUSTRIAL PARK INC	6
CAMPBELL SOUP SUPPLY CO LLC	5
CAMPBELL UNIVERSITY INC	65
CAN AM SOUTH LLC	2
CANTON SAWMILL LLC	7
CAPE FEAR ACADEMY	2
CAPE FEAR COMMUNITY COLLEGE	30
CAPE FEAR COUNTRY CLUB	7
CAPE FEAR PUBLIC UTILITY AUTH	5
CAPEL INC	6
CAPITAL FUNDS INC	2
CAPITOL BROADCASTING CO	13
CARDINAL METALWORKS INC	2
CARLIE C OPERATION CENTER INC	11
CAROLINA APPAREL GROUP INC	1
CAROLINA BAY OF WILMINGTON LLC	5
CAROLINA BEACH TOWN OF	2
CAROLINA COUNTRY CLUB	3
CAROLINA CRATE & PALLET INC	3
CAROLINA DAIRY LLC	2
CAROLINA EGG CO INC	1
CAROLINA ELECTRONIC ASSEMBLERS	1
CAROLINA EYE ASSOCIATES PA	1
CAROLINA ICE INC	4
CAROLINA INNOVATIVE FOOD INGRE	3
CAROLINA PRESERVE BY DEL WEBB	4
CAROLINA TECHNICAL PLASTICS	3

CARQUEST OF SRONCE	2
CARTERET CO BD OF ED	5
CARTERET COMMUNITY COLLEGE	18
CARTERET COUNTY FINANCE	1
CARTERET GENERAL HOSPITAL	3
CARY TOWN OF	19
CARY VENTURE LTD PRTRSHIP	14
CASCADES HOLDING US INC	5
CASE FARMS	8
CATALENT PHARMA SOLUTIONS LLC	16
CATERPILLAR INC	11
CECIL BUDD TIRE COMPANY LLC	3
CERTAINTED CORPORATION	4
CERTAINTED GYPSUM NC INC	3
CERTAINTED INC	1
CFVH - BLADEN HEALTHCARE	11
CHARTER COMMUNICATIONS INC	1
CHATHAM CO	1
CHATHAM CO BOARD OF EDUCATION	21
CHATHAM HOSPITAL INC	3
CITRIX SYSTEMS INC	3
CITY OF HENDERSON	2
CITY OF RALEIGH PARKS REC DEPT	9
CLIFFORD W ESTES CO INC	3
CLINTON CITY BD OF ED	8
CLINTON CITY OF	3
CLOVERLEAF COLD STORAGE CO	1
CMC CORPORATION	3
CMS FOOD SOLUTIONS INC	1
COAST LAMP MANUFACTORY	2
COASTAL CAR COMM COLL RES BLD	1
COASTAL CAROLINA COMM COLLEGE	13
COASTAL FEDERAL CREDIT UNION	1
COATINGS AND ADHESIVES CORP	7
COBB VANTRESS INC	1
COKER FEED MILL INC	1
COLONIAL CARTON CO	1
COLUMBUS COUNTY SCHOOLS	11
COLUMBUS REG HEALTHCARE SYSTEM	3
COMFORT TECH INC	1
COMPUTER DESIGN INC	1
CONESTOGA WOOD SPECIALTIES	2
CONSOLIDATED METCO INC	2

CONVEYOR TECHNOLOGIES OF SANFO	4
COOPER INDUSTRIES INC	2
COOPER-STANDARD AUTOMOTIVE INC	2
CORE-MARK DISTRIBUTORS INC	2
CORNELIA NIXON DAVIS INC	5
CORNELIA NIXON DAVIS NURSING	1
CORNING INC	3
CORTEK	4
COSTCO	4
COTTLE STRAWBERRY NURSERY INC	8
COTY US LLC	6
COUNCIL TOOL CO INC	4
COUNTRY CLUB OF LANDFALL	17
COUNTY OF WAYNE	1
COURTYARD BY MARRIOTT	2
COVIA HOLDINGS CORPORATION	6
CPI USA NORTH CAROLINA LLC	1
CRAVEN CO BD OF ED	11
CRAVEN CO JUSTICE CENTER	2
CRAWFORD KNITTING INC	1
CROP PRODUCTION SERVICES INC	1
CROSS CANVAS COMPANY INC	3
CRUMPLER PLASTIC PIPE INC	8
CSX TRANSPORTATION	2
CTC FURNITURE DISTRIBUTORS INC	1
CUMBERLAND CO BD ED	5
DAK AMERICAS LLC	3
DALIAH PLASTICS CORP	4
DAY INTERNATIONAL INC	2
DCI INC	1
DEERFIELD EPISCOPAL RETIREMENT	18
DENNISON, WYNDHAM V	1
DEPT OF HEALTH & HUMAN RESOURC	34
DESCO INDUSTRIES INC	4
DEVIL DOG MFG CO INC	1
DEWEY DEVELOPMENT INC	1
DIXIE PIPELINE COMPANY	4
DRPFC I LLC	5
DUKE UNIV HEALTH SYSTEM INC	26
DUKE UNIVERSITY MARINE LAB	1
DUNN CITY OF	2
DUPLIN CO BD OF ED	7
DUPLIN GENERAL HOSP	3

DUPONT SPECIALTY PRODUCTS	10
DYNAPAR CORP	3
E CAROLINA METAL TREATING INC	2
EAGLE SPORTSWEAR LLC	3
EARTH FARE INC	3
EATON CORPORATION	8
EDWARDS BROTHERS INC	2
EDWARDS WOOD PRODUCTS INC	6
ELAND INDUSTRIES INC	1
ELASTIC THERAPY INC	3
ELECTRO SWITCH CORPORATION	1
ELEMENTIS CHROMIUM INC	4
ELKAY SOUTHERN PLANT 2	1
ELKINS SAWMILL INC	3
EMC CORPORATION	4
EMERGEORHTO PA	2
EMERSON AUTOMATION SOLUTIONS	3
ENERGIZER BATTERY MANUFACTURIN	3
ENTERCO LLC	1
ENVIVA PELLETS SAMPSON LLC	1
ENVIVA PORT OF WILMINGTON, LLC	4
EOS ACQUISITION I LLC	1
ERICO INC	1
EVERGREEN PACKAGING INC	4
EXTREME NETWORKS INC	1
FAYETTEVILLE TECH COMM COLL	2
FCC (NC) LLC	1
FENNER DRIVES	1
FIRST BAPTIST CH OF ASHE INC	1
FIRST CITIZENS BANK	1
FIRST CITIZENS BANK & TRUST CO	5
FIRSTHEALTH OF THE CAROLINAS	43
FLETCHER BUSINESS PARK LLC	0
FLETCHER HOSPITALITY, LLC	0
FLOCO FOODS INC	2
FLOWSERVE US INC	1
FLYING J INC	1
FOOD LION LLC	179
FORTRON INDUSTRIES LLC	1
FOUNTAIN POWER BOATS INC	5
FOUR SEASONS MNGMT SVCS INC	6
FRANK THEATRES PARKSIDE COMMON	1
FRANKLIN BAKING COMPANY LLC	7

FRANKLIN COUNTY SCHOOLS	5
FRATERNITY/SORORITY LIFE	4
FRESH BUY INC	2
FRESH FOODS LLC	3
FUJIFILM DIOSYNTH BIOTEC USA	1
FUQUAY-VARINA TOWN OF	1
GALE FORCE SPORTS & ENTERTAIN	13
GALLOWAY RIDGE INC	17
GENERAL ELECTRIC CO	2
GENERAL INDUSTRIES INC	4
GENERAL PARTS DIST LLC	1
GENERAL SHALE BRICK INC	8
GENERAL TIMBER INC	4
GEORGIA PACIFIC WOOD PROD LLC	1
GEORGIA-PACIFIC CORP	2
GH CRESCENT GREEN INC	1
GIBRALTAR PACKAGING GROUP INC	4
GILDAN YARNS LLC	1
GIVENS ESTATES INC	12
GIVENS HIGHLAND FARMS LLC	11
GKN DRIVELINE N AMERICA INC	4
GLAXOSMITHKLINE	9
GLEN RAVEN MILLS INC	1
GLENWOOD ASSET MANAGEMENT LLC	1
GLENWOOD HOSPITALITY ASSOC LLC	1
GLENWOOD PLACE VENTURES LLC	1
GLOBAL PACKAGING INC	1
GODWIN MFG CO INC	14
GOLDSBORO CITY OF	2
GOLDSBORO HOUSING AUTHORITY	3
GOLDSBORO MILLING CO	13
GRANITE FALLS SWIM/ATHL CLUB	2
GREATER ASHEVILLE REG AIRPORT	1
GREDE II LLC	3
GREENE COUNTY MANAGER	1
GRIFOLS THERAPEUTICS LLC	4
H & H FURNITURE MFG INC	2
HALIFAX MEDIA HOLDINGS LLC	4
HANESBRANDS INC	2
HANSON AGGREGATES SE LLC	33
HANSON BRICK EAST LLC	1
HAPPY JACK INC	1
HARDEN ROAD ASSOCIATES	1

HARGER LIGHTNING & GROUNDING	1
HARNETT CO BD OF ED	22
HARNETT CO PUBLIC UTIL	9
HARNETT CO SHERIFF OFFICE	1
HARNETT HEALTH SYSTEM INC	19
HARRIS PRINTING CO INC	3
HARRIS TEETER INC	23
HASTY PLYWOOD CO	3
HAVELOCK CITY OF	1
HAYWOOD COUNTY LOCAL GOV	1
HAYWOOD REGIONAL MEDICAL CNTR	5
HCL AMERICA INC	1
HEATMASTERS LLC	3
HERAEUS QUARTZTECH AMERICA LLC	1
HEXION INC	2
HIGHWOODS JOINT VENTURE	1
HIGHWOODS REALTY LP	26
HJH ASSOCIATES	1
HOG SLAT INC	9
HOLLY SPRINGS TOWN OF	1
HOME CARE PRODUCTS LLC	1
HOME DEPOT USA INC	9
HOPE COMMUNITY CHURH OF NC INC	2
HORNWOOD INC	3
HOUSE OF RAEFORD FARMS INC	14
HOUSING AUTH CITY OF RALEIGH	2
HUGHES FURNITURE INDUSTRIE INC	1
HULSING HOTELS INC	12
HUVEPHARMA INC	1
HYDRO TUBE ENTERPRISES INC	1
IAC TROY LLC	1
IMMEDION LLC	3
INGERSOLL-RAND	1
INGLES MARKETS INC	84
INN ON BILTMORE ESTATE INC	1
INNOVATIVE LAMINATIONS CO	1
INTERNATIONAL BROADCAST BUREAU	1
INTERNATIONAL PAPER COMPANY	6
INVISTA S A R L	1
J & D WOOD INC	3
J A MCNEILL & SONS	1
J C HOWARD FARMS LLC	8
J P TAYLOR COMPANY LLC	4

J&J SNACK FOODS HANDHELDS CORP	2
JACKSONVILLE CITY OF	4
JACOB HOLM IND AMERICA INC	1
JOHN DEERE TURF CARE INC	3
JOHNSTON CO BOARD OF EDUCATION	76
JOHNSTON CO PUBLIC UTILITIES	2
JOHNSTON MEM HOSPITAL AUTH	1
JORDAN LUMBER & SUPPLY INC	14
JOVC FOOD CORP INC	0
KAYSER-ROTH HOSIERY INC	4
KENNAMETAL INC	2
KESSLER ASHEVILLE LLC	1
K-FLEX USA LLC	9
KILELEE, KATHRYN	1
KING CHARLES INDUSTRIES LLC	1
KINGS HOLDINGS 4, LLC	1
KINGSLAND REALTY LLC	1
KLAUSSNER FURN IND INC	21
KOOPMAN DAIRIES INC	4
KORDSA INC	2
KROGER COMPANY	3
KRYOCAL, LLC	3
LAKE JUNALUSKA ASSEMBLY INC	51
LANCER INC	4
LAZAR INDUSTRIES LLC	4
LCNRC OF COLUMBUS CO LLC	2
LEAR CORPORATION	3
LEE BRICK & TILE COMPANY	7
LEE COUNTY COURT HOUSE	1
LEE IRON & METAL CO	5
LENOVO INTERNATIONAL	1
LEWIS SAUSAGE CO INC	1
LIBERTY COMMONS WARREN CO LLC	1
LIBERTY HEALTHCARE SERVICES	3
LIFEWAY CHRISTIAN RESOURCES OF	41
LINAMAR NORTH CAROLINA INC	4
LINPRINT CO	1
LIVE OAK BANKING COMPANY	0
LOCAL GOVERNMENT FED CREDIT UN	1
LORD CORPORATION	2
LOUISBURG COLLEGE INC	12
LOUISE WELLS CAMERON ART MUSEU	4
LOUISIANA PACIFIC CORP	4

LOW & BONAR INC	1
LOWER CAPE FEAR WATER & SEWER	1
LOWES COMPANIES INC	25
LOWES FOODS LLC	25
LUMBERTON CELLULOSE LLC	4
M ADLER'S SON, INC	1
MAGNETI MARELLI USA INC	4
MANHATTEN AMERICAN	1
MANUFACTURING METHODS, LLC	1
MARS PETCARE US, INC	7
MARTIN MARIETTA MATERIALS INC	59
MAS US HOLDINGS INC	3
MAY FURNITURE INC	3
MCDOWELL LUMBER CO INC	11
MCGILL ENVIRONMENTAL SYS OF NC	1
MCLAMBS ABATTOIR AND MEATS INC	1
MCMURRAY FABRICS INC	7
MEASUREMENTS GROUP INC	4
MEDICAL ACTION INDUSTRIES INC	1
MEDICAL SPECIALTIES INC	1
MEMORIAL MISSION HOSPITAL INC	1
MEREDITH COLLEGE	6
MERITOR HEAVY VEHICLE SYS LLC	2
MERTEK SOLUTIONS INC	1
METAL-CAD & STEEL FRAMING	1
METCHEM, LLC	1
METROPOLITAN SEWAGE DISTRICT	5
MHG ASHEVILLE AL LP	1
MICROSPACE COMM CORP	1
MILKCO INC	0
MINE SAFETY APPL CO INC	1
MISSION HEALTH SYSTEM INC	16
MISSION ST JOSEPH HEALTH SYS	1
MISSION ST JOSEPH HOSPITAL	1
MITCHELL CO BD OF ED	2
MMIC-TL INC PARTNERS LLC	1
MOEN INC	4
MONTGOMERY COUNTY OF	2
MOORE COUNTY	1
MOORE COUNTY SCHOOLS	18
MOORE'S INLET LIMITED PRTRNSHP	1
MOUNTAIRE FARMS INC	21
MT OLIVE PICKLE CO	16

MULE CITY SPEC FEED INC	2
MURPHY BROWN LLC	1
N C TELEVISION INC	1
N RALEIGH CHRISTIAN ACADEMY	0
N RALEIGH MEDICAL REALTY LLC	1
NASH BRICK CO INC	2
NASH COMMUNITY COLLEGE	8
NASH COUNTY	1
NASH COUNTY MANAGERS OFFICE	1
NASH ROCKY MOUNT BD OF ED	23
NATIONAL SPINNING CO INC	5
NATIONAL WIPER ALLIANCE INC	1
NATURAL BLEND VEG DEHYDR LLC	1
NATURES EARTH PELLETS INC LLC	3
NATURES WAY FARMS INC	1
NC AQUARIUM	0
NC DEPT OF AGRICULTURE	3
NC DEPT OF PUBLIC SAFETY	45
NC FARM BUREAU FEDERATION	1
NC RENEWABLE PWR LUMBERTON LLC	5
NC STATE FAIRGROUNDS	5
NC STATE PORTS AUTH	12
NC STATE PORTS AUTHORITY	23
NC STATE UNIVERSITY	143
NC STATE VETERANS HOME	2
NC WILDLIFE COMMISSION	1
NESBITT ASHEVILLE VENTURE LLC	2
NEW BELGIUM BREWING CO INC	1
NEW HANOVER CO BD OF ED	36
NEW HANOVER REGIONAL MED CTR	32
NG PURVIS FARMS INC	3
NHC PROPERTY MANAGEMENT	1
NOBLE OIL SERVICES	4
NOMACO INC	3
NOMACORC LLC	3
NORCRAFT COMPANIES LP	2
NORTH CAROLINA MFG CO INC	1
NORTH HILLS TOWER II LLC	3
NORTH STATE TECH SOLUTIONS	1
NOVIPAX LLC	4
NOVO NORDISK PHARMACUTICAL INC	4
NOVOZYMES NORTH AMERICA INC	6
NYPRO ASHEVILLE INC	2

OFFICE OF INFOR TECH SVCS	4
OHM HOTELS RTP, LLC	0
OLDCASTLE LAWN & GARDEN INC	5
OLIVER RUBBER COMPANY	2
OMNI GROVE PARK LLC	21
ONslow CO BD OF COMM	2
ONslow CO BD OF EDUC	23
ONslow MEMORIAL HOSPITAL AUTH	2
ONslow WATER AND SEWER AUTH	5
ORACLE AMERICA, INC	1
OWENS & MINOR	1
OXFORD CITY OF	0
P G & C INC	1
PACTIV LLC	1
PAK A SAK FOOD STORES	1
PALLET EXPRESS, INC	4
PALZIV NORTH AMERICA INC	1
PAPA JOHNS USA INC	0
PARADIGM ANALYTICAL	1
PARK COMMUNICATIONS LLC	2
PARK N SHOP FOOD MART INC	6
PARKDALE AMERICA LLC	2
PARRISH & RONE INC	1
PCS PHOSPHATE CO INC	2
PEAK 10 INC	3
PENDER CO BD OF ED	17
PENDER MEMORIAL HOSPITAL INC	7
PENICK VILLAGE INC	13
PENTAIR WATER POOL AND SPA INC	10
PEPSI BOTTLING VENTURES LLC	6
PERDUE FARMS INC	23
PERSON CO BD OF ED	2
PETROLEUM TANK CO	2
PFIZER INC	11
PH HS LLC	1
PHOENIX LTD PARTNERSHIP	1
PIEDMONT NATURAL GAS	1
PIEDMONT NATURAL GAS CO	1
PILGRIMS PRIDE CORPORATION	11
PILKINGTON	1
PINEHURST LLC	84
PINEHURST MEDICAL CLINIC	1
PIONEER HI BRED INC	4

PLASTEK IND INC (PA) NC	3
PLASTICARD PRODUCTS INC	1
POLYMER GROUP INC	3
POLYZEN INC	1
PORT CITY COMMUNITY CHURCH	3
PR II WADE PARK LLC	3
PRAXAIR INC	2
PRC NC LLC	2
PRECISION HYDRAULIC CYL INC	4
PRECISIONAIRE INC	3
PREMIERE FIBERS INC	4
PRESTAGE AGENERGY OF NC LLC	2
PRESTAGE FARMS INC	35
PRESTIGE FABRICATORS INC	2
PRESTON TAYLOR FOOD INC	1
PRINTLOGIC LLC	2
PRO PALLET SOUTH INC	1
PROTO LABS INC	0
PSNC ENERGY	1
PUBLIC SCHOOLS OF ROBESON CO	1
PUBLIX NORTH CAROLINA LP	2
QUAIL HAVEN OF PINEHURST LLC	1
QUALCOMM INC	1
QUALITY CHEMICAL LABORATRS LLC	2
QUALITY TEXTILE SERVICES INC	1
RAEFORD CITY OF	1
RAILROAD FRICTION PRODUCT CORP	4
RALEIGH CITY OF	6
RALEIGH FITNESS & WELLNESS	1
RALEIGH HOTEL OPERATOR INC	1
RALEIGH PRECISION PRODUCTS INC	0
RANDOLPH COUNTY	9
RAVEN ANTENNA SYSTEMS INC	1
RC CREATIONS, LLC	2
RD AMERICA LLC	1
RDU AIRPORT AUTHORITY	6
RED HAT INC	1
RED WOLF COMPANY, LLC	1
REDDY ICE CORP	2
REGAL CINEMAS	2
REGAL ENTERTAINMENT GROUP	4
REICH LLC	2
RESINART EAST INC	1

REVLON CONSUMER PRODUCTS CORP	3
REX HEALTH CARE INC	14
REX MOB PARTNERS LLC	1
RHEINFELDEN AMERICAS LLC	1
RICHMOND COUNTY	1
RICHMOND COUNTY BOARD OF COMM	2
RICHMOND COUNTY SCHOOLS	2
RICHMOND SPECIALTY YARNS LLC	2
RIDGECREST CONFERENCE CENTER	1
ROBESON COUNTY DSS	1
ROCKINGHAM CITY OF	9
RODECO CO	2
ROYAL TEXTILE MILLS INC	1
RUBY'S PROPERTIES II LLC	1
S AND J HOLDINGS LLC	1
S B SMITH & SON INC	4
S T & F PRECISION INC	1
S T WOOTEN CORPORATION	17
SAAB BARRACUDA LLC	6
SAINT JOSEPH OF THE PINES INC	21
SAMPSON REGIONAL MEDICAL CTR	3
SANDERSON FARMS INC	7
SANDHILLS COMM COLLEGE	0
SANFORD CITY OF	4
SANFORD LEE CO BD OF ED	20
SANFORD MILLING CO INC	2
SAPONA MFG CO INC	2
SAS INSTITUTE INC	25
SCHINDLER ELEVATOR CORP	2
SCOTLAND CONTAINER INC	2
SCOTLAND MANUFACTURING	1
SEPARATION TECHNOLOGIES LLC	2
SEQIRUS INC	1
SIBELCO NORTH AMERICA INCORPOR	45
SIGMA PHI EPSILON	1
SILAR LABORATORIES, INC.	1
SILER CITY TOWN OF	2
SILVER LINE PLASTICS CORP	11
SINCLAIR BROADCAST GROUP INC	1
SIX FORKS OFFICE, LLC	3
SKYLAND BEER DIST	3
SMITHFIELD FRESH MEATS	6
SMOKY MOUNTAIN MACHINING INC	3

SNEEDEN, NORMAN E	2
SNUG HARBOR MANAGEMENT LLC	1
SONOCO PRODUCTS CO	1
SOUTH RIVER EMC COMM ASST CORP	1
SOUTHCO INC OF NC	1
SOUTHEASTERN REGIONAL MED CTR	4
SOUTHERN BAG CORP	1
SOUTHERN CONCRETE MATERIAL INC	14
SOUTHERN FABRICATORS INC	4
SOUTHERN PINES TOWN OF	2
SOUTHERN PRODUCE DIST INC DIP	3
SOUTHERN PRODUCTS & SILICA CO	6
SOUTHERN STATES CHEMICAL INC	3
SPANSET INC	1
SPECGX LLC	13
SPIRIT AEROSYSTEMS INC	2
SPORTS FACTORY LLC	2
SPX FLOW TECHNOLOGY SYSTEMS	1
ST ANDREWS PRESBYTERIAN COLL	1
ST. DAVIDS SCHOOL	6
STAN JOHNSON & ASSOCIATES LLC	2
STANADYNE INC	2
STARPET INC	6
STATIC CONTROL COMP INC	11
STEEL & PIPE CORP	1
STEVEN ROBERTS ORIGINAL	2
STI POLYMER INC	1
SUMITOMO ELECTRIC LIGHTWAVE CO	1
SUN LIFE ASSURANCE CO OF CANAD	1
SUNBRIDGE REGENCY NC LLC	2
SUNRISE SENIOR LIVING	1
SUPERIOR MODULAR PRODUCT INC	1
SUPERIOR PLASTICS EXTRUSION	1
SUPERTEX, INC	4
SURGERY CENTER OF PINEHURST	1
SURGICAL CARE AFFILIATES	1
SURTRONICS	2
SVT VENTURES LP	4
SYRACUSE PLASTIC OF NC INC	1
TALBERT BUILDING SUPPLY INC	0
TARGET STORES	8
TCDC PARTNERSHIP, LLC	2
TE CONNECTIVITY CORPORATION	2

THE ATRIUM AT BLUE RIDGE, LLC	1
THE BILTMORE COMPANY	3
THE CHEESECAKE FACTORY	1
THE CHEMOURS COMPANY FC, LLC	8
THE COUNTRY CLUB OF NC INC	1
THE CYPRESS OF RALEIGH	7
THE HARRELSON BUILDING INC	0
THE NEWS REPORTER CO INC	1
THE QUARTZ CORP USA	17
THE UMSTEAD	1
THEO DAVIS SONS INC	1
THERMAL METAL TREATING INC	1
THERMOFISHER SCI ASHEVILLE LLC	0
TIERPOINT LLC	3
TIME WARNER CABLE SE LLC	4
TIPPER TIE INC	2
TOP TOBACCO CO	3
TOWN SQUARE WEST LLC	7
TRAM LUMBER LLC	3
TRAMWAY VENEERS INC	1
TRANS CAROLINA PRODUCTS LLC	1
TREEHOUSE FOODS INC	6
TRIANGLE AQUATIC CENTER	1
TRIANGLE BRICK CO	6
TRIANGLE TOWN CENTER, LLC	19
TRINITY MANUFACTURING INC	6
TROTTERS SEWING COMPANY INC	1
TROY LUMBER CO	16
TROY POLYMER INC	1
TUCSON CARY, LLC	1
TURN BULL LUMBER COMPANY	1
TYCO ELECTRONICS	1
TYSON FOODS INC	3
U S REIF 4700 FALLS NC LLC	1
UCHIYAMA MANUF AMERICA LLC	3
UNC AT ASHEVILLE	8
UNC INSTITUTE OF MARINE SCI	3
UNC PUBLIC TV OF NC	1
UNCW	18
UNILEVER MANUFACTURING US INC	6
UNILIN NORTH AMERICA LLC	4
UNILIN US MDF	3
UNISON ENGINE COMPONENTS INC	4

UNITED STATES COLD STORAGE INC	6
UNITED STATES GYPSUM CO	1
UNIVERSAL HEALTHCARE N RAL INC	1
UNIVERSAL LEAF NORTH AMERICA	3
UNIVERSITY OF NC AT PEMBROKE	16
UNIVERSITY RESEARCH UNIT	1
US ARMY	1
US ARMY FORT BRAGG	3
US DEPT OF AIR FORCE	1
US FLUE CURED TOBACCO GROWERS	1
US MARINE CORP	1
US MARINE CORPS	1
US POST OFFICE	2
US VETERANS ADMIN HOSPITAL	3
USCG FINANCE CENTER	7
USS NC BATTLESHIP COMM	2
UWHARRIE FRAME MFG LLC	2
UWHARRIE LUMBER CO	3
VALLEY PROTEINS INC	15
VANDERBILT MINERALS LLC	4
VANGUARD CULINARY GROUP LTD	1
VENEER TECHNOLOGIES INC	7
VERTEX RAILCAR CORPORATION	2
VICTAULIC CO OF AMERICA	2
VILLARI BROS FOODS LLC	1
VONDREHLE CORP	6
VULCAN CONST MATERIALS LP	26
W N WILDER CO INC	1
WADESBORO IGA INC	1
WAKE CO HOSP SYSTEM INC	4
WAKE COUNTY BOARD OF EDUCATION	190
WAKE COUNTY GENERAL SERVICES	15
WAKE STONE CORP	17
WAKEMED	6
WAKEMED FACILITIES SVC	2
WAKEMED PROPERTY SERVICES	15
WAL MART PDC #6091	4
WALMART STORES INC	76
WALNUT CREEK AMPHITHEATER	5
WARP TECHNOLOGIES INC	1
WARREN CO BD OF ED	6
WAYNE BAILEY INC	3
WAYNE CO PUBLIC SCHOOLS	1

DE Progress EE Opt Out at December 31, 2018
North Carolina (excludes outdoor lighting)

WAYNE COMMUNITY COLLEGE	1
WAYNE COUNTY	6
WAYNE MEMORIAL HOSPITAL INC	13
WAYNESVILLE TOWN OF	1
WELLS FARGO BANK NA	2
WEST CRAVEN HIGH SCHOOL	5
WEST CRAVEN MIDDLE SCHOOL	0
WEST FRASER INC	6
WESTERN NC HEALTHCARE INNO III	1
WESTERN NC HEALTHCARE INNO LLC	1
WEYERHAEUSER NR COMPANY	8
WHITEVILLE FABRICS LLC	4
WILLIAM BARNET & SON INC	7
WILLIAMS PROPERTY GROUP INC	1
WILMINGTON CITY OF	1
WILMINGTON HOTEL ASSOC CORP	2
WILMINGTON INTL AIRPORT	13
WILMINGTON MACHINERY INC	1
WILSONART INTERNATIONAL	5
WNC PALLET & FOREST PRDCTS INC	0
WRDC LLC	1
WRIGHT FOODS INC	2
WRIGHT MACHINE & TOOL CO INC	1
XELLIA PHARMACEUTICALS USA LLC	1
YALE INDUSTRIAL PRODUCTS INC	1
YAMCO LLC	1
YMCA OF WESTERN NORTH CAROLINA	1
Grand Total	4,277

DE Progress
Industrial and Commercial Accounts Opted In 2018

I/A

Customer Name	DSM	EE
Carlie C Operation Center	1	
NCDPS (Nash Correctional)	1	
Carteret General Hospital		3
Food Lion Llc		2
Fresh Foods Llc		1
Klaussner Furn Ind Inc		5
Nc Dept Of Public Safety		1
New Hanover Co Bd Of Ed		6
Prestige Fabricators Inc		1
Target Stores		1
West Craven Middle School		1
Whole Foods Market Group Inc		1
Grand Total	2	22

EM&V Activities

Planned Evaluation, Measurement and Verification (EM&V) Activities through the rate period (Dec. 31, 2020)

Evaluation is a term adopted by Duke Energy Progress (DEP), and refers generally to the systematic process of gathering information on program activities, quantifying energy and demand impacts, and reporting overall effectiveness of program efforts. Within evaluation, the activity of measurement and verification (M&V) refers to the collection and analysis of data at a participating facility/project. Together this is referred to as "EM&V."

Refer to the accompanying Evans Exhibit 11 chart for a schedule of process and impact evaluation analysis and reports that are currently scheduled.

Energy Efficiency Portfolio Evaluation

DEP has contracted with independent, third-party evaluation consultants to provide the appropriate EM&V support, including the development and implementation of an evaluation plan designed to measure the energy and demand impacts of the residential and non-residential energy efficiency programs.

Typical EM&V activities:

- Develop evaluation action plan
- Process evaluation interviews
- Collect program data
- Verify measure installation and performance through surveys and/or on-site visits
- Program database review
- Impact data analysis
- Reporting

The process evaluation provides unbiased information on past program performance, current implementation strategies and opportunities for future program improvements. Typically, the data collection for process evaluation consists of surveys with program management, implementation vendor(s), program partner(s), and participants; and, in some cases, non-participants. A statistically representative sample of participants will be selected for the analysis.

The impact evaluation provides energy and demand savings resulting from the program. Impact analysis may involve engineering analysis (formulas/algorithms), billing analysis, statistically adjusted engineering methods, and/or building simulation models, depending on the program and the nature of the impacts. Data collection may involve surveys and/or site visits. A statistically representative sample of participants is selected for the analysis. Duke Energy Progress intends to follow industry-accepted methodologies for all measurement and

verification activities, consistent with International Performance Measurement Verification Protocol (IPMVP) Options A, C or D depending on the measure.

The field of evaluation is constantly learning from ongoing data collection and analysis, and best practices for evaluation, measurement and verification continually evolve. As updated best practices are identified in the industry, DEP will consider these and revise evaluation plans as appropriate to provide accurate and cost-effective evaluation.

Demand Response Program Evaluation

DEP has contracted with independent, third-party evaluation consultants to provide an independent review of the evaluation plan designed to measure the demand impacts of the residential and non-residential demand response programs and the final results of that evaluation.

Typical EM&V activities:

- Collect program data
- Process evaluation interviews
- Verify operability and performance through on-site visits
- Collect interval data
- Program database review
- Benchmarking research
- Dispatch optimization modeling
- Impact data analysis
- Reporting

The process evaluation provides unbiased information on past program performance, current implementation strategies and opportunities for future improvements. Typically, the data collection for process evaluation consists of surveys with program management, implementation vendor(s), program partner(s), and participants; and, in some cases, non-participants. A statistically representative sample of participants will be selected for the analysis.

The impact evaluation provides demand savings resulting from the program. Impact analysis for EnergyWise involves a simulation model to calculate the duty cycle reduction, and then an overall load reduction. Impact analysis for CIG-DR involves statistical modeling of an M&V baseline load shape for a customer, then modeling the event period baseline load shape and comparing to the actual load curve of the customer during the event period.

The field of evaluation is constantly learning from ongoing data collection and analysis, and best practices for evaluation, measurement and verification continually evolve. As updated best practices are identified in the industry, DEP will consider these and revise evaluation plans as appropriate to provide accurate and cost-effective evaluation.

I/A

DEP DSM/EE Programs - Anticipated EM&V Schedule
As of June 4, 2019

DEP DSM/EE Programs - Anticipated EM&V Schedule

Program Name	NC Docket	SC Docket	Short name	2019 2nd Quarter	2019 3rd Quarter	2019 4th Quarter	2020 1st Quarter	2020 2nd Quarter	2020 3rd Quarter	2020 4th Quarter	Notes
Commercial Demand Response	Docket No. E-2, Sub 953	Docket 2010-41-E	CIG DR	REP (2018)				REP (2018)			
Distribution System Demand Response	Docket No. E-2, Sub 926	Docket 2009-190-E	DSDR								
Nonresidential Smart Saver EE Products & Assessment (Prescriptive)	Docket No. E-2, Sub 938	Docket 2009-190-E	EEB		PROC/IMP	PROC/IMP	REP				Smart Saver Prescriptive DEC combined with DEP
Nonresidential Smart Saver EE Products & Assessment (Custom)	Docket No. E-2, Sub 938	Docket 2009-190-E	EEB					PROC/IMP	PROC/IMP		EEB Custom projects combined with DEC Smart Saver Custom eval report
EnergyWise	Docket No. E-2, Sub 927	Docket 2009-190-E	EW		REP (2018/2019)		REP (2019)				
EnergyWise for Business	Docket No. E-2, Sub 1086	Docket 2015-163-E	EWB								Next evaluation TBD
Energy Efficiency Education	Docket No. E-2, Sub 1060	Docket 2014-420-E	K12						PROC/IMP		
Residential Energy Assessment	Docket No. E-2, Sub 1094	Docket 2016-82-E	REA					PROC/IMP	REP		Combined DEC/DEP evaluation in 2020/2021
Lighting (Retail)	Docket No. E-2, Sub 950	Docket 2010-41-E	LP								No further EM&V work planned
Multi-Family Energy Efficiency	Docket No. E-2, Sub 1059	Docket 2014-419-E	MF			PROC/IMP	REP				Will be combined DEC/DEP evaluation, evaluation schedule extended
My Home Energy Report	Docket No. E-2, Sub 989	Docket 2011-180-E	MyHER	REP						PROC/IMP	Report in 2019 will be combined DEC/DEP evaluation
Neighborhood Energy Saver	Docket No. E-2, Sub 952	Docket 2009-190-E	NES	IMP	REP						2018 delayed to 2019 due to complete switchover to LEDs, evaluation to be combined with DEC evaluation
Residential New Construction	Docket No. E-2, Sub 1021	Docket 2015-237-E	RNC								Next evaluation TBD
Residential Save Energy & Water Kit	Docket No. E-2 Sub 1085	Docket 2015-322-E	SEW			PROC/IMP	REP				To be combined with DEC evaluation, timing pushed back due to program changes
Small Business Energy Saver	Docket No. E-2, Sub 1022	Docket 2015-163-E	SBES					PROC/IMP	REP		

LEGEND	
PROC	Process surveys/interviews (customers or other) for purposes of report that follows
IMP	Impact data collection (onsites, billing data) and analysis for purposes of report that follows
REP	Evaluation, Measurement & Verification Report

NOTE: THESE DATES ARE SUBJECT TO CHANGE



2017 EM&V Report for the Duke Energy Progress Commercial, Industrial, and Governmental Demand Response Automation (DRA) Program

Prepared for:

Duke Energy Progress

Prepared by:

Navigant Consulting, Inc.



May 1, 2018



Prepared for:
Duke Energy Progress

Presented by:
Stuart Schare
Managing Director

Navigant Consulting, Inc.
1375 Walnut Street
Suite 100
Boulder, CO 80302
phone 303.728.2500
fax 303.728.2501

navigant.com

Primary contributing authors:
Peter Steele-Mosey



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Attached as separate documents:

Appendix A: Event Day Load Profile and Baseline Plots (.pdf document)

Appendix B: Analysis Data Tables & Graphics (.xlsx document)



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EXECUTIVE SUMMARY

The Commercial, Industrial, and Governmental Demand Response Automation (DRA) program is part of the portfolio of demand-side management and energy efficiency (DSM/EE) programs initiated by Duke Energy Progress (DEP) in 2009. DRA offers participating companies and agencies a financial incentive to reduce their electricity consumption when called upon by DEP. This report covers evaluation, measurement, and verification (EM&V) activities for Program Year 2017 (PY2017).

This EM&V report is intended to verify program impacts as per the requirements established by the North Carolina Utilities Commission and the Public Service Commission of South Carolina. Major objectives of the evaluation were as follows:

- Verify the demand reduction calculated by DEP's method of baseline estimation as described in the *Demand Response Automation Rider DRA-7 (North Carolina) and DRA-8 (South Carolina)* filed by DEP¹
- Produce a set of verified program impacts by customer and for the program as a whole using the most accurate baseline method identified in PY2010 and PY2011. Specifically, per Navigant's SOW and the approved evaluation plan, Navigant was required to:
 - Estimate verified impacts using a regression-based approach with a day-of load adjustment (as appropriate²);
 - Estimate average kW event load shed per meter, by sector, and for the program as a whole; and,
 - Provide a detailed baseline approach and explanation of the kW impact calculations.

Program Summary

The DRA program offers participating companies and agencies a financial incentive to reduce their electricity consumption for up to 8 hours at a time on only a few system peak days in either the summer or winter months. As in PY2016, no winter events were called in PY2017. Under the program, DEP's technology vendor (Comverge) installs two-way communications equipment to remotely monitor and record interval loads at 15-minute intervals. Customer load curtailments are commonly provided through the use of onsite generation or from shutting down manufacturing processes. Curtailments might also include modifications in the use of heating, ventilation, and air conditioning (HVAC) systems, lighting, and other building loads.

In PY2017, 20 customers were registered as participants in DEP's DRA program, representing 45 unique sites and 69 meters. Of the 69 meters that were registered as participants in PY2017, 31 are at commercial sites and three are at governmental sites. Thirty-five meters are at industrial sites, 16 of which belong to a single manufacturing company. For brevity, the very large industrial participant (with 16 meters) is referred to in this report as the "VLIP."

¹ North Carolina Rider, DRA-7: <https://www.duke-energy.com/media/pdfs/rates/gp2ncriderdradep.pdf?la=en>

South Carolina Rider, DRA-8: <https://www.duke-energy.com/media/pdfs/for-your-home/rates/electric-sc/gp1scriderdra.pdf?la=en>

² Day-of load adjustments are not appropriate when event notification is not provided on the same day as the event.



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An overview of the participating customers and average reported DR impacts for summer events is presented in Table 1.

Table 1. Summary of Participating Companies and Agencies

Sector	Customer Type	Number of Customers	Number of Sites	Number of Meters	Avg. Reported Reduction per Meter (kW)
Commercial	Warehouse/Distribution	1	1	1	614
Industrial	Manufacturing	8	15	35	271
Governmental	Government Institution	1	1	1	2,766
Governmental	Water Treatment	2	2	2	640
Commercial	Grocery	4	22	24	246
Commercial	Office	3	3	3	271
Commercial	Hospital/Medical	1	1	3	363
Total Program		20	45	69	N/A³

Source: DEP DRA program database

Evaluation Methods

The PY2017 evaluation consisted of an impact evaluation only. The methods used for the evaluation are summarized below.

1. Replication of DEP-Reported Impacts

The evaluation team used interval data for all participant meters and event schedule data to calculate a baseline for each event and each participant meter. These baselines were all calculated using the algorithm Duke Energy uses to report program impacts and calculate participant incentives for settlement purposes.

2. Verification of Program Impacts

Navigant estimated verified impacts by comparing a regression-estimated baseline to actual event day demands. The team estimated baselines using individual customer regressions. This approach is the result of a set of tests conducted as part of the PY2011 and PY2012 evaluation to determine the most accurate approach for estimating impacts.

Key Findings

Three DRA events were called during the summer of PY2017, involving 69 unique customer meters.

This section outlines the key findings of this impact evaluation.

³ An average by meter is not provided here to avoid undue confusion in comparison with aggregated impacts. Average impacts per participating meter across multiple events ignore "impacts" of events in which the meter did not participate, reporting an average per meter value here could appear to inflate program-level impacts inappropriately.



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Key Impact Findings

The key impact evaluation findings are:

- **Verified impacts were slightly less than reported impacts.** The realization rate for the summer DR impacts for PY2017 was 96%, with an average of approximately 19.3 MW of DR contributed by the program.
- **Participation⁴ remains inconsistent between events.** The average total event impacts for the summer of PY2017 were highest for the second two events (20 and 20.8 MW), but substantially lower for the first event (17 MW). Only 55 meters participated in the first event.
- **Total program impact increased in PY2017 compared to PY2016, but is still lower than PY2015 result.** The average event impact increased from about 17.6 MW in PY2016 to about 19.3 MW in PY2017. The average impact across all three PY2015 events was approximately 20.1 MW. Duke Energy staff indicate that changes in US Environmental Protection Agency (EPA) regulations regarding onsite generators were a major contributor to the decline in impacts since 2015 and that changes in these regulations resulted in the loss to the program (after 2015) of participants, accounting for 5 MW of contracted DR.

The EM&V analysis found average load reductions of approximately 19.3 MW per summer event, or about 300 kW per meter, on average⁵, or 96% of the figure reported⁶ by Duke Energy in its DRA program database (Table 2). On average, the relative precision associated with the baselines used to develop estimated impacts, during event periods, was +/- 1.2% at the 90% confidence level.

Table 2. Verified Load Reductions and EM&V Verification Rate – Summer

Load Reduction Category	Event kW			Avg. Total Reduction Over Summer Events
	2017-07-13	2017-07-21	2017-08-18	
Reported (Duke Energy Database)	17,974	20,088	22,262	20,108
Verified	16,992	20,020	20,767	19,260
Relative Precision (Verified Impacts +/-)	2.2%	2.0%	2.1%	1.2%
Verified Realization Rate (Verified Reductions/Reported Reductions)	95%	100%	93%	96%

Sources: DEP DRA program database and Navigant analysis

The evaluation team found that, as in previous years' evaluations, the VLIP's demand was highly variable across many of its meters in the summer of 2017. On many non-holiday weekdays, demand for a given meter was close to zero and on others in the range of hundreds of kilowatts. These volatile patterns of

⁴ Event-specific participation refers to enrolled participants delivering more than 0 kW of DR for a given event. An enrolled customer meter has participated in only two of three events if that meter has contributed more than 0 kW on only two of the three events.

⁵ Average impact per meter is calculated as the average across events of the average across participating meters by event. This value will not correspond to the total number of meters that participated at some point in the summer (69) divided by the average impact across events (19.2 MW), since not all meters participated in all events.

⁶ Reported impacts are those impacts calculated by DEP using the DRA baseline algorithm.



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use cause the estimated baselines and impacts for each of the individual meters to be less reliable than for other meters with a more consistent pattern of demand.

Navigant successfully replicated the DEP settlement baseline and reported impacts for every meter/event pair.

As in previous program year evaluations, a set of plots of event day load profiles—by meter—is included in Appendix A (separate document). These plots provide the average hourly demand, the load-adjusted regression baseline, and a non-load-adjusted regression baseline for each event and for each participating meter. These plots also highlight the evaluated event period. The evaluation team has found this set of plots to be extremely useful for its analysis and would recommend examining them after (or while) reading the report below.



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1. PROGRAM DESCRIPTION AND RESEARCH OBJECTIVES

The Commercial, Industrial, and Governmental (CIG) Demand Response Automation (DRA) program is part of the portfolio of demand-side management and energy efficiency (DSM/EE) programs initiated by Duke Energy Progress (DEP) in 2009. DRA offers participating companies and agencies a financial incentive to reduce their electricity consumption for up to 8 hours at a time on a few peak days. DEP's program literature specifies that a minimum of three summer events will be called, and the maximum number of curtailment events is 10. Typical event duration is 6-8 hours.

This report covers evaluation, measurement, and verification (EM&V) activities for the seventh year of the DRA program, Program Year 2017 (PY2017). EM&V is a term adopted by DEP and refers generally to the assessment and quantification of the energy and peak demand impacts of an EE or DR program. For DR, estimating reductions in peak demand is the primary objective, as energy impacts are generally negligible.

1.1 Objectives of the Evaluation

This EM&V report is intended to verify program impacts as per the requirements established by the North Carolina Utilities Commission and the Public Service Commission of South Carolina. Major objectives of the evaluation were as follows:

- Verify the demand reduction calculated by DEP's method of baseline estimation as described in the *Demand Response Automation Rider DRA-7 (North Carolina) and DRA-8 (South Carolina)* filed by DEP ⁷
- Produce a set of verified program impacts by customer and for the program as a whole using the most accurate baseline method identified in PY2010 and PY2011. Specifically, per Navigant's SOW and the approved evaluation plan, Navigant was required to:
 - Estimate verified impacts using a regression-based approach with a day-of load adjustment (as appropriate⁸);
 - Estimate average kW event load shed per meter, by sector, and for the program as a whole; and,
 - Provide a detailed baseline approach and explanation of the kW impact calculations.

1.2 Program Overview

The DRA program was developed in response to DEP's determination that a curtailable load program would be a valuable resource for the company and an additional service offering for customers that would complement DEP's existing load curtailment riders. The program seeks to increase DEP's DR resources by improving customer receptiveness to curtailment programs through increased awareness of load

⁷ North Carolina Rider, DRA-7: <https://www.duke-energy.com/ /media/pdfs/rates/gp2ncriderdradep.pdf?la=en>

South Carolina Rider, DRA-8: <https://www.duke-energy.com/ /media/pdfs/for-your-home/rates/electric-sc/gp1scriderdra.pdf?la=en>

⁸ Day-of load adjustments are not appropriate when event notification is not provided on the same day as the event.



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reduction potential and restructuring of the incentives and non-compliance charges used for current DR programs.

The DRA program offers participating companies and agencies a financial incentive to reduce their electricity consumption for up to 8 hours at a time on only a few system peak days annually. Under the program, DEP's technology vendor (Comverge) installs two-way communications equipment to remotely monitor and record interval loads at 15-minute intervals. Participants are guaranteed at least 30 minutes of advanced notice before a curtailment event, but often are given several hours of notice for summer events and day-ahead notice for winter events. For the summer of PY2017, all participants received notice day-ahead of all events.

Eligibility. To qualify for the program, DEP commercial and industrial customers must be able to curtail 75 kW. Importantly, all industrial customers and any commercial customers that use more than 1 million kWh per year must also elect to forego the opportunity to opt out of the rider that funds DEP's DSM/EE programs. By opting in, customers become eligible for DSM/EE incentives and commit to pay the rider for a period of 3 years.⁹

Incentives. The program provides three types of participant incentives:

- **A one-time participation incentive of \$50 per demonstrated kW.** Intended to enhance customer acquisition and to support customer investment related to program participation, including purchase and installation of automated controls
- **A monthly availability credit of \$3.25 per contracted kW.** Intended to provide steady payment streams and ensure readiness
- **An event performance credit of \$6 per curtailed kW.** Intended to increase resource reliability through an emphasis on event compliance

This three-part incentive structure was selected to benefit customers for responding to more events and to ensure that DEP pays for performance but limits its costs when few events are called. As a pay-for-play program, it ensures that customers will receive more incentives when the need for peak reduction is high.

Performance and Compliance. DEP provides customers with information about complying with program requirements based on curtailment levels during pre-defined seasonal peak periods. Participants are also provided information about the method for estimating baseline to determine curtailment impacts.

- Summer peak period: defined as 1 p.m. – 9 p.m. on weekdays in June through September
- Winter peak period: defined as 5 a.m. – 10 a.m., and 5 p.m. – 11 p.m. on weekdays in December through February

1.3 Reported Program Participation and Savings

In PY2017, 20 customers were registered as participants in DEP's DRA program, representing 45 unique sites and 69 meters. Of the 69 meters, 31 are at commercial sites and three are at governmental sites.

⁹ Prior to January 1, 2016, the required commitment was 10 years.



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Thirty-five meters are at industrial sites, 16 of which belong to a single manufacturing company. For brevity, the very large industrial participant (with 16 meters) is referred to in this report as the VLIP.

An overview of the participating customers is presented in Table 3, including number of meters and sites by customer type and the average demand reduction reported by DEP over the three summer events by customer type.

Table 3. Summary of Participating Customers

Sector	Customer Type	Number of Customers	Number of Sites	Number of Meters	Avg. Reported Reduction per Meter (kW) ¹⁰
Commercial	Warehouse/ Distribution	1	1	1	614
Industrial	Manufacturing	8	15	35	271
Governmental	Government Institution	1	1	1	2,766
Governmental	Water Treatment	2	2	2	640
Commercial	Grocery	4	22	24	246
Commercial	Office	3	3	3	271
Commercial	Hospital/Medical	1	1	3	363
Total Program		20	45	69	N/A¹¹

Source: DEP DRA program database

The average reported impacts shown above are the average only of the impacts for event/participant pairs where DEP reported a non-zero impact (sometimes referred to as "participation" in this report). DEP reported a total impact of approximately 20.1 MW on average, per event.

PY2017 average reported¹² event curtailments at individual meters ranged from the trivial to nearly 2,800 kW, as shown in Figure 1. In this chart, meters are segregated by sector: commercial/governmental and industrial.

¹⁰ Average reported demand by customer type is calculated as the average by customer type of the average individual meter impacts across events in which participants achieved some DR. Because these values are based only on compliant reported DR achievement, a total calculated based on the values in this table will overstate the total reported average DR achieved across the three events. This value is reported in Table 2 and Table 4.

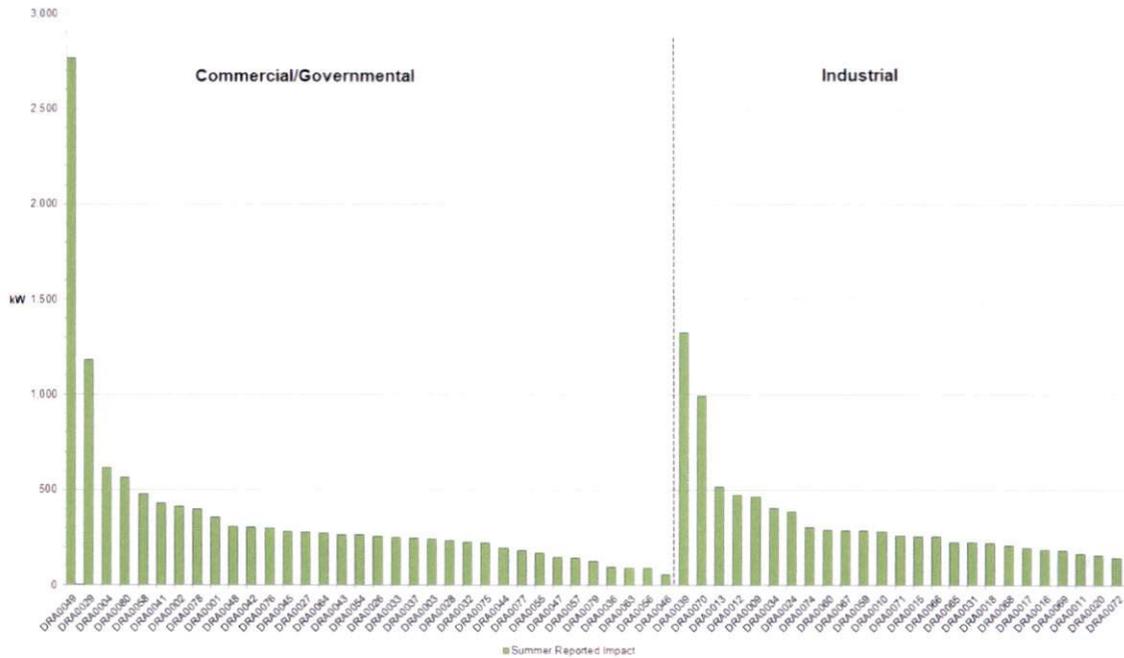
¹¹ An average by meter is not provided here to avoid undue confusion in comparison with aggregated impacts. Average impacts per participating meter across multiple events ignore "impacts" of events in which the meter did not participate, reporting an average per meter value here could appear to inflate program-level impacts inappropriately.

¹² Note that as per the convention of this report, reported impacts refer to the settlement impacts estimated using the DEP baseline algorithm and not the regression-estimated verified impacts.



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Figure 1. Reported Load Reductions (kW) by Meter



Source: DEP DRA program database



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2. EVALUATION METHODS

This section describes the methods and data used by the evaluation team to conduct the PY2017 impact evaluation of the CIG DRA program.

Estimating impacts of DR events is generally a matter of first estimating a counter-factual baseline of what a customer's load would have been during the hours of the curtailment event had the event not been called. Actual measured loads are then subtracted from this baseline to estimate load reductions. The baseline estimation methods used by DEP and by the evaluation team are discussed below. The regression approach applied by Navigant implicitly applies this arithmetic through the use of indicator or "dummy" variables included on the right-hand-side of the regression equation.

The evaluation team used the following data in its analysis:

- Quarter-hourly interval data for 69 DRA program participating meters between May 1, and October 31, 2017
- Hourly observations of temperature data from National Oceanic and Atmospheric Administration (NOAA) weather stations
- Event logs supplied by DEP indicating the date, and start and end time of each event, as well as the time at which participants were notified of an imminent event.

Using this data, the evaluation team conducted three principal sets of analyses:

1. **Replication of the savings calculations provided by DEP**, which estimated baselines using the three qualifying non-excluded days immediately prior to an event.
2. **Estimation of the impact of events for all meters** using a regression-derived baseline. Unlike in some previous program years, day-of-load adjustments could not be applied to the baselines. Day-of-load adjustments are possible when participants are notified on the date of the event. Notification was provided day-ahead for all three events in 2017.

Evaluations of DSM/EE programs commonly estimate a net-to-gross (NTG) ratio based on the evaluated percentage of demand reductions that may be ascribed either to free ridership (which reduces the NTG ratio) or program spillover (which increases the NTG ratio). Free ridership is typically defined as the percentage of demand reductions that would have occurred anyway, absent the presence of the program. Participant spillover is typically defined as incremental demand reductions undertaken by a program's participants though not directly incented or promoted by the program administrator.

In the case of DR programs such as DRA, there is no reason to expect that a customer would curtail loads during the event periods (the timing of which would be unknown to the customer absent participation in the program) without being enrolled in the program. Furthermore, because demand reductions are estimated relative to an estimated baseline that captures expected participant behavior absent an event, the analysis inherently accounts for free ridership and participant spillover; that is, absent the DRA program, none of the observed demand reductions would have taken place. Based on the above considerations, the evaluation team considers the NTG ratio for the impact analysis of the DRA program to be 1.0.



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2.1 Replication of the DEP Savings Calculations

DEP estimated load reductions using a baseline calculation method developed internally by DEP and described in *Demand Response Automation Rider DRA-7 (North Carolina) and DRA-8 (South Carolina)* filed by DEP. The evaluation team replicated DEP's algorithm to confirm the results reported by DEP.

The DEP algorithm¹³ generates a baseline for calculating program impacts on event days based on the three non-excluded (holidays, weekends, and curtailment days) and qualifying days immediately prior to an event day. A day is deemed as qualifying if average demand during curtailment event hours on that day is at least 50% of the average of the three non-excluded days. If one of the first three non-excluded days prior to the event is deemed to be non-qualifying, the next prior non-excluded day is used. If there are not three qualifying days out of the 10 non-excluded days prior to the event, the algorithm reverts to using the three most immediate non-excluded days prior to the event.

The average demand over the three selected days during the hours corresponding to those in which the event was called is the baseline used to calculate impacts and participant incentive payments. The reported impact is calculated as the difference between the average baseline over the event period and the average actual demand over that period, excluding the first 15 minutes of the event.¹⁴

2.2 Estimation of Regression-Based Baseline for Calculating Verified Impacts

The evaluation team estimated verified impacts as the difference between actual average demand over the time span of the event (excluding the first 15 minutes) and the regression-estimated average baseline demand.

To estimate the baseline, the team estimated the following regression for each meter in the summer, including only non-holiday and non-event weekdays:

Equation 1. Individual Meter Regression Specification

$$y_t = \sum_{i=0}^{96} \beta_{1,i} Quarterhour_{i,t} + \sum_{i=0}^{96} \beta_{2,i} Quarterhour_{i,t} CDH_t + \sum_{c=1}^{69} \gamma_c C_{i,t} + errors_t$$

Where:

- y_t = The average demand (kW) observed at the given meter in the quarter hour of sample t .
- $Quarterhour_{i,t}$ = 96 dummy variables, each one equal to 1 if quarter hour t is i -th quarter hour of the day (for example, if quarter hour t is between midnight and 12:15 a.m., $Quarterhour_0$ is equal to 1 and 0 otherwise or if quarter hour t is between 1:00 p.m. and 1:15 p.m. then $Quarterhour_{52}$ is equal to 1 and 0 otherwise).
- CDH_t = The cooling degree hours in quarter hour of sample t .

¹³ The details of the DEP algorithm are described in more detail in Appendix A of the PY2010 report.

¹⁴ Note, however, that the baseline is calculated using all event quarter-hours.



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$C_{i,t}$ = A set of 69 dummy variables, intended to control for program impacts in every event quarter hour of the evaluation period (three events, six hours each, less the first quarter hour of each). Each variable takes a value of 1 when the t -th hour of the sample is also the c -th event quarter hour for which impacts are being evaluated.¹⁵

Navigant applied the estimated coefficients from the regression above. The estimated impact in each quarter hour is delivered by the relevant parameters $\sum_{c=1}^{69} \gamma_c$.

¹⁵ Using a set of dummy variables in this manner is analytically equivalent to simply excluding the event quarter-hours, estimating the model and subtracting the actual from the baseline. The key difference is that it makes estimating impact uncertainty (through the standard errors) much more convenient.



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3. PROGRAM IMPACTS

This chapter describes the findings from the evaluation team's analysis of load reduction impacts for the DRA program for PY2017.

DEP called three events during the summer of 2017, involving 69 unique customer meters. The EM&V analysis found average load reductions¹⁶ of approximately 19.3 MW per summer event—approximately 300 kW per meter¹⁷, or slightly less than the 20.1 MW figure reported¹⁸ by DEP in its DRA program database (Table 4).¹⁹

Table 4: Verified Load Reductions and EM&V Verification Rate

Load Reduction Category	Event kW			Avg. Total Reduction Over Summer Events
	2017-07-13	2017-07-21	2017-08-18	
Reported (Duke Energy Database)	17,974	20,088	22,262	20,108
Verified	16,992	20,020	20,767	19,260
Relative Precision (Verified Impacts +/-)	2.2%	2.0%	2.1%	1.2%
Verified Realization Rate (Verified Reductions/Reported Reductions)	95%	100%	93%	96%

Sources: DEP DRA program database and Navigant analysis

Other significant findings of the impact evaluation, by topic areas, are as follows:

Approved Baseline Methodology

- **Finding 1:** Navigant successfully replicated the DEP settlement baseline and reported impacts for every meter/event pair.

Verified Impacts

- **Finding 2:** Using the regression-derived baseline, the evaluation team verified that participants as a whole achieved an average of 19.3 MW of demand reduction during summer events, approximately 96% of that reported and 100% of that contracted.

¹⁶ Note that the average load reduction per event is the average of only non-zero load reductions achieved. For example, if two meters contributed 100 kW each and a third meter did not achieve any DR (i.e., actuals were above baseline) the average verified impact for this event would be reported as 100 kW.

¹⁷ Average impact per meter is calculated as the average across events of the average across participating meters by event. This value will not correspond to the total number of meters that participated at some point in the summer (69) divided by the average impact across events (19.2 MW), since not all meters participated in all events.

¹⁸ Reported impacts are those impacts calculated by DEP using the DRA baseline algorithm.

¹⁹ As noted previously, reported impacts are those impacts calculated by DEP using the DRA baseline algorithm. Verified impacts are based on a regression baseline. Both sets of impacts are net values, implicitly assuming an NTG ratio of 1.0. See Section 2 for further discussion.



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- **Finding 3:** Total program impacts increased in PY2017 compared to PY2016, but were still somewhat lower than in PY2015. DEP staff indicate that changes in US Environmental Protection Agency (EPA) regulations regarding onsite generators is a major contributor to this reduction in DR impacts from PY2015.

The remainder of this chapter is divided into two sections:

- **Section 3.1 – Replication of DEP-Reported Impacts.** Replication of the DEP settlement algorithm.
- **Section 3.2 – Verified Impacts .** Impacts estimated using the regression baseline method described above.

3.1 Replication of DEP-Reported Impacts

As noted above, part of the task assigned to the evaluation team was to replicate the DEP algorithm to confirm the validity of the results reported by DEP.

Navigant successfully replicated the DEP settlement baseline and reported impacts for every meter/event.

3.2 Verified Impacts

All verified impacts discussed below are based on the regression model without a symmetric day-of load adjustment. The evaluation team found that baselines with day-of-load adjustments delivered the most accurate estimated impacts, on average, in the PY2010 and PY2011 evaluations; however, these are not possible when participants are notified the day prior to an event date.

DEP called three events during the summer of 2017, involving 69 unique customer meters. The EM&V analysis found average load reductions of 19.3 MW per event—approximately 300 kW per meter, or approximately 96% of the 20.1 MW figure reported by DEP in its DRA program database (Table 5).²⁰

²⁰ As noted previously, reported impacts are those impacts calculated by DEP using the DRA baseline algorithm. Verified impacts are net values, implicitly assuming an NTG ratio of 1.0. See Section 2 for further discussion.



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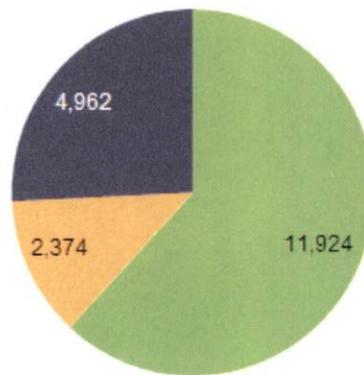
Table 5. Verified Load Reductions and EM&V Verification Rate (By Customer Type)

Load Reduction Category	Event kW			Avg. Total Reduction Over Summer Events
	2017-07-13	2017-07-21	2017-08-18	
Reported (Duke Energy Database)	17,974	20,088	22,262	20,108
Verified				
<i>Com/Gov't</i>	11,857	11,512	12,402	11,924
<i>VLIP</i>	833	3,312	2,977	2,374
<i>Other Ind.</i>	4,302	5,196	5,388	4,962
Verified – Total	16,992	20,020	20,767	19,260
Verified Realization Rate (Verified Reductions/Reported Reductions)	95%	100%	93%	96%

Sources: DEP DRA program database and Navigant analysis

For summer 2017, the EM&V team verified that the 34 commercial/governmental meters realized an average total of 11,924 kW of load reductions, accounting for approximately 62% of the total kW reduction; the 16 industrial meters belonging to the VLIP realized an average total of 2,374 kW of load reductions, which accounts for approximately 12% of the total kW reduction. The balance of load reductions—4,962 kW or 25% of the total—were made up by meters located at industrial sites not belonging to the VLIP. This distribution is shown in Figure 2.

Figure 2. Share of Total Verified kW Reduction: Commercial/Governmental vs. Industrial



■ Commercial/Governmental ■ Very Large Industrial Participant ■ Other Industrial

Sources: DEP DRA program database and Navigant analysis

The following discussion provides a summary of load impact findings based on a linear-regression baseline method identified by the evaluation team as the most accurate for predicting customers' loads



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(see PY2011 and PY2012 evaluation reports for more detail). The team estimated load reductions for individual participants for each event. Average verified program savings were then calculated as the average across each of the three summer events across all 69 participants' meters.

DEP had reported summer program impacts to be approximately 104% of the aggregate contracted load reductions, or 20.1 MW. The EM&V analysis verified 96% of these reported reductions (or 100% of the contracted reductions). The average contracted, DEP-reported, and verified load curtailment for each participant meter is shown in Table 6.

This table includes a count of the number of events for which each meter contributed non-zero DR impacts. The average contracted, reported, and verified impacts shown in Table 6 are the averages only of events for which the given participant was contracted and in which that participant participated. This means that the sum of the average impacts in this table will not match the average of the total impacts reported in Table 5, which are the average of the total impacts across all participants for each event.



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Table 6. Average Contracted, Reported, and Verified Loads by Meter

Commercial/Governmental					Industrial				
Participant Site	Contracted kW	DEP Reported kW	Verified kW	# Events Participated	Participant Site	Contracted kW	DEP Reported kW	Verified kW	# Events Participated
DRA0001	362	357	359	3	DRA0009	450	462	424	2
DRA0002	383	413	442	2	DRA0010	75	282	217	2
DRA0003	150	243	246	3	DRA0011	75	164	118	2
DRA0004	490	614	632	3	DRA0012	300	475	292	2
DRA0026	209	257	270	3	DRA0013	75	517	368	3
DRA0027	220	277	291	3	DRA0014	75	98	77	3
DRA0028	183	234	241	3	DRA0015	150	257	145	2
DRA0029	900	1181	1571	3	DRA0016	200	188	153	3
DRA0032	200	228	226	3	DRA0017	200	196	148	3
DRA0033	204	253	254	3	DRA0018	180	220	173	3
DRA0036	75	98	85	3	DRA0019	100	107	95	3
DRA0037	203	249	258	3	DRA0020	75	155	149	2
DRA0041	415	429	445	3	DRA0021	200	32	173	3
DRA0042	249	303	315	3	DRA0022	75	74	41	1
DRA0043	240	265	271	3	DRA0023	75	0	52	1
DRA0044	163	197	205	3	DRA0024	300	386	391	2
DRA0045	209	284	285	3	DRA0030	75	104	123	3
DRA0046	207	56	62	1	DRA0031	225	224	225	3
DRA0047	177	146	149	3	DRA0034	920	405	250	3
DRA0048	328	307	318	3	DRA0039	1,050	1328	1270	3
DRA0049	2500	2766	2828	3	DRA0051	135	130	91	3
DRA0054	275	263	281	3	DRA0052	75	57	57	3
DRA0055	275	171	184	3	DRA0059	209	285	260	2
DRA0056	143	89	95	3	DRA0060	413	292	268	3
DRA0057	198	143	146	2	DRA0061	75	44	33	3
DRA0058	500	477	505	3	DRA0065	130	228	232	3
DRA0063	250	92	95	3	DRA0066	200	255	253	3
DRA0064	209	273	276	3	DRA0067	190	288	304	3
DRA0075	258	221	232	3	DRA0068	140	207	218	3
DRA0076	303	298	307	3	DRA0069	150	184	180	3
DRA0077	185	180	179	3	DRA0070	761	993	731	3
DRA0078	500	398	96	1	DRA0071	180	262	202	3
DRA0079	700	125	0	1	DRA0072	125	144	104	3
DRA0080	500	565	224	1	DRA0073	105	132	82	3
					DRA0074	225	302	165	3

Sources: DEP DRA program database and Navigant analysis

Verification rates at the portfolio level are driven by findings for individual meters. Three of the 69 participating meters in 2017²¹ account for a little less than one-third of all summer reductions and thus drive overall summer findings. Figure 3 ranks the meters by the amount of verified kW reduction in

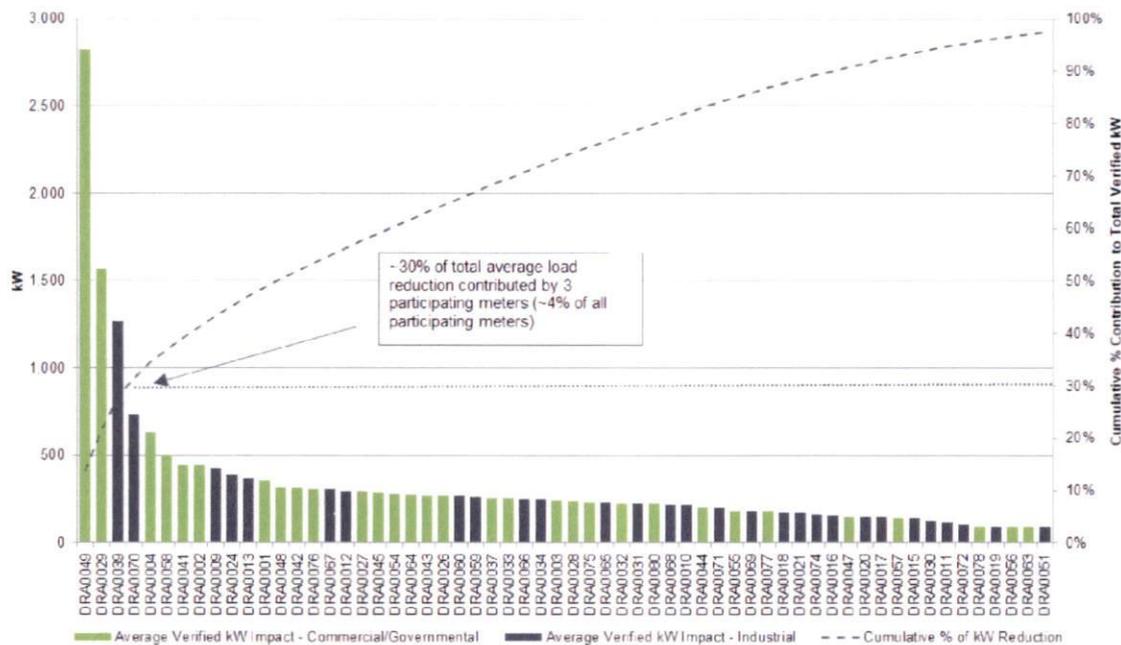
²¹ The three meters that are driving overall results include two governmental sites and one industrial (manufacturing) site.



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descending order, illustrating the decrease in load reductions between the largest and smallest contributors in the program.

Figure 3. Cumulative Percentage of Total Verified kW Reduction



Sources: DEP DRA program database and Navigant analysis

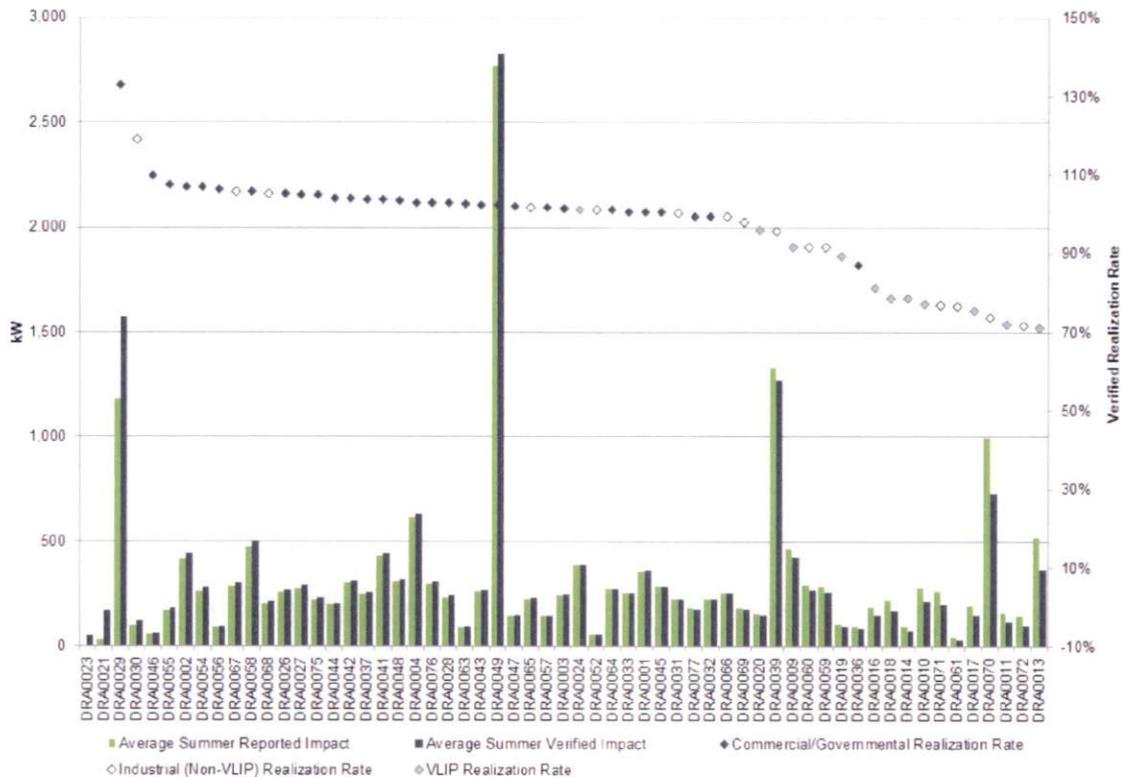
These results can be re-examined by plotting the reported and verified demand reductions and verified realization rate (average verified kW across three events divided by average reported kW across three events) once they have been sorted by verified realization rate (see Figure 4). In this figure, the black diamonds represent commercial/governmental realization rates, the gray diamonds represent the VLIP's realization rates, and the white diamonds represent the non-VLIP industrial realization rates.

As may be seen in Figure 4, the average verified summer realization rate for all but five of the commercial and governmental meter sites is at or above 90%. In contrast, the average verified summer realization rate of three-quarters of the VLIP meters is below 90%.



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Figure 4. Reported and Verified DR and Verified Realization Rate



Sources: DEP DRA program database and Navigant analysis

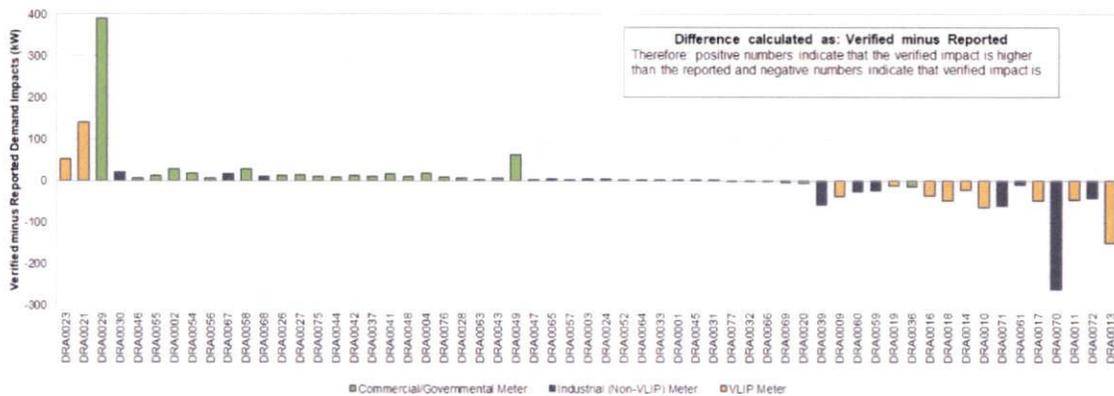


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Recall that the verified realization rate is the (regression-estimated) verified impact divided by the (DEP algorithm calculated) reported impact. The regression approach estimates a baseline using average seasonal relationships whereas the DEP approach relies entirely on the three most recent non-excluded qualifying days to calculate a baseline.

To better understand the results implied by the realization rates presented above, it is important to also observe the magnitude of the difference (in kW instead of as a percentage) between the DEP-reported impacts and the verified impacts. For this reason, the evaluation team presents the average difference (across the seasonal events) between the verified summer impact and the reported summer impact for each meter in Figure 5. For example, the evaluation team found that Duke Energy's reported impacts for meter DRA 0029 were nearly 400 kW less than those verified by Navigant, and that the Duke Energy's reported impacts for meter DRA0070 were 250 kW higher than those verified by Navigant. To aid understanding, these have been sorted in this figure by realization rate in the same manner as in Figure 4.

Figure 5. Differences in Impact Estimates: Regression vs. DEP Settlement Method



Sources: DEP DRA program database and Navigant analysis



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Response Automation (DRA) Program

4. SUMMARY FORM

**Commercial, Industrial, and Governmental Demand
Response Automation Program**
Completed EMV Fact Sheet

Description of program

DEP's CIG DRA program is a demand response program where customers are incentivized by DEP to curtail their loads during "events" as requested by DEP.

Participants must have the capability to curtail at least 75 kW of load when called upon by DEP. Most events last for 3-6 hours, and participants are guaranteed at least 30 minutes of notice before an event starts, but are often notified the day before.

DEP called three events in 2017. The program included 20 customers, spanning 45 site locations and 69 electric meters.

Evaluation Methods

The evaluation team estimated impacts from the demand response events by replicating DEP's settlement baseline and applying a regression-based approach.

Impact Evaluation Details

- The program achieved a verified average of 19.3 MW per event, which is about 4% less than DEP's reported value of 20.1 MW.
- The average impact per meter was about 300 kW, with impacts as low as about 33 kW and as high as over 2,800 kW for individual meters.
- The evaluation team found the verified impacts to be between 90% and 110% of DEP's reported impacts for the majority of participants.
- The Net to Gross ratio is estimated to be 1.0 for this program. This is because the regression approach accounts for the counterfactual baseline and it is highly unlikely that any participants would curtail their load in the absence of the program during the same time that events are being called by Duke Energy (since only participants are notified of events).

Date:	March 21, 2018
Region:	Duke Energy Progress
Evaluation Period	January 1, 2017 through December 31, 2017
Annual MWh Savings	N/A
Net-to-Gross Ratio	1.0



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5. CONCLUSIONS & RECOMMENDATIONS

This section of the evaluation report presents the evaluation team's principal findings, conclusions, and recommendations.

The key impact evaluation findings are:

- **Verified impacts were slightly less than reported impacts.** The realization rate for the summer DR impacts for PY2017 was 96%, with an average of approximately 19.3 MW of DR contributed by the program.
- **Participation²² was inconsistent between events.** The average total event impacts for the summer of PY2017 were highest for the second and third events (20.0 and 20.8 MW, respectively), but substantially lower for the first event (17.0 MW).
- **Total program impact increased in PY2017 compared to PY2016, but has yet to recover to PY2015 levels.** The average event impact increased from 17.6 MW in PY2016 to 19.3 MW in PY2017, but is still lower than the 20.1 MW achieved in 2015. DEP staff indicate that changes in US EPA regulations regarding onsite generators are a major contributor to this.

Navigant has one recommendation for the PY2018 evaluation, regarding a possible re-examination of the evaluation approach. In PY2010 and PY2011, Navigant tested a large number of potential baseline estimation techniques and tested these "out-of-sample" to select the approach that was, on average, the most accurate for all participants. Since that time, the group of enrolled participants has changed materially, with some participants leaving the program and others joining. Likewise, there appears to be a trend to shifting away from day-of notification to day-prior notification. This is doubtless very helpful for engaging customer response, but does materially impact the accuracy of the impact estimation: recall that the most accurate approach tested in the previous evaluation cycles was one which made use of a symmetric day-of adjustment, an adjustment that cannot be reasonably applied when notification is day-prior.

Navigant would therefore recommend that DEP consider allowing Navigant, for the PY2018 evaluation, to re-test a large set of potential regression model specifications, as it did in 2010 and 2011..

²² Event-specific participation refers to enrolled participants delivering more than 0 kW of DR for a given event. An enrolled customer meter has participated in only two of three events if that meter has contributed more than 0 kW on only two of the three events.

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EM&V Report for the Residential New Construction Program

Program Years: 2015 – 2016

Prepared for:

Duke Energy Progress



Submitted by:
Navigant Consulting, Inc.
1375 Walnut St.
Suite 100
Boulder, CO 80302

1.720.564.1130
navigant.com

Reference No.: 147038
May 25, 2018

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EM&V Report for the EnergyWise Home Program

Winter 2017/2018

Presented for:
Duke Energy Progress

Prepared by:
Navigant Consulting, Inc.



August 6, 2018

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Page 1 of 52

NAVIGANT

EM&V Report for the Small Business Energy Saver Program

Duke Energy Progress and Duke Energy Carolinas

Prepared for:

Duke Energy



Submitted by:
Navigant Consulting, Inc.
1375 Walnut Street
Suite 100
Boulder, CO 80302

303.728.2500
navigant.com

September 10, 2018

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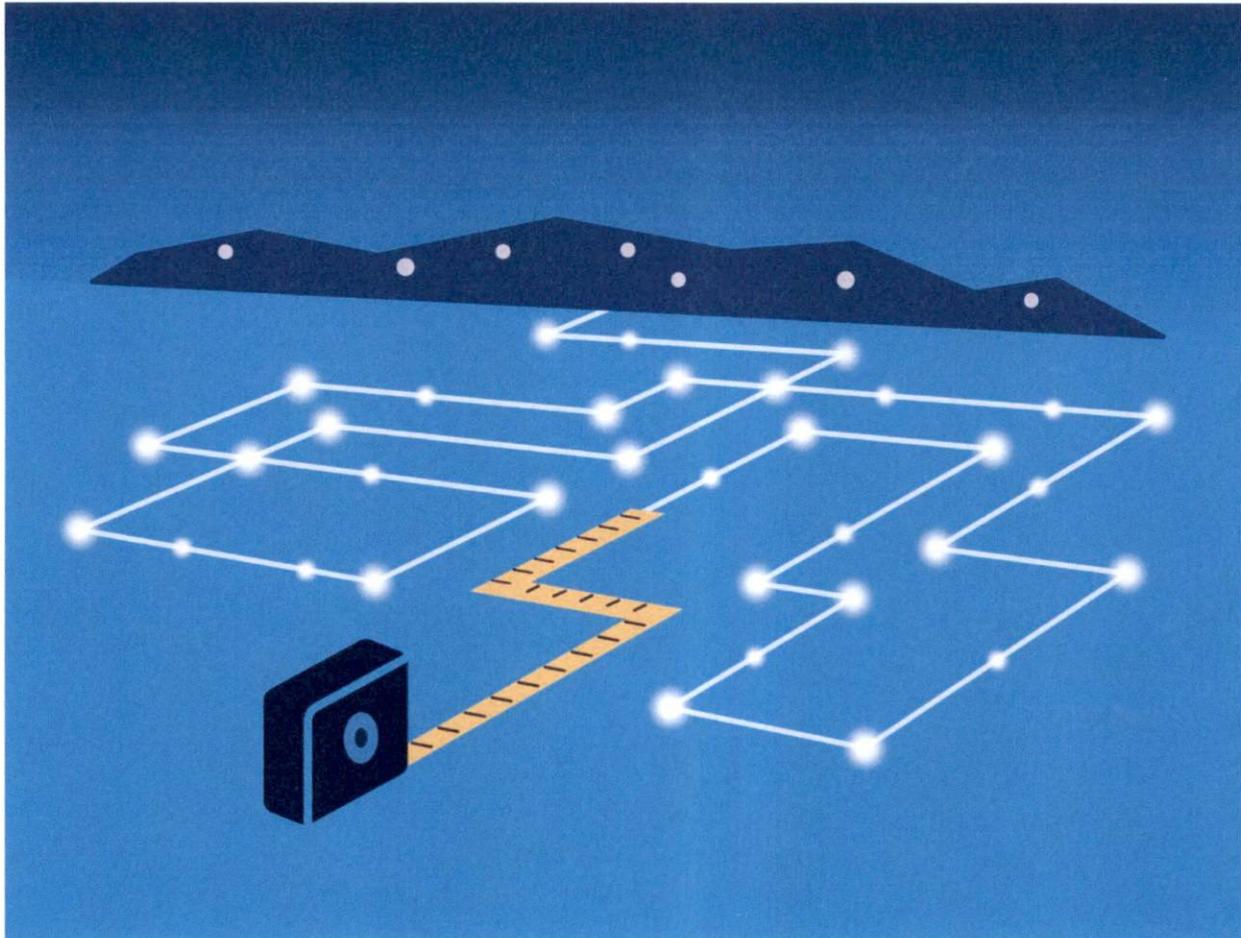


Opinion Dynamics

Boston | Headquarters

617 492 1400 tel
617 497 7944 fax
800 966 1254 toll free

1000 Winter St
Waltham, MA 02451



Duke Energy Progress

Residential Energy Assessments Program Evaluation Report – Final

October 12, 2018

opiniondynamics.com



Contributors

Aaiysha Khursheed
Principal Consultant, Opinion Dynamics

Antje Flanders
Vice President, Opinion Dynamics

Stef Wayland
Senior Director, Data Science, Opinion Dynamics

Matt Drury
Director, Engineering Opinion Dynamics

Marion Cundari
Consultant, Engineering, Opinion Dynamics

Stephen Mariani
Consultant, Opinion Dynamics



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1. Evaluation Summary

1.1 Program Summary

The Duke Energy Progress (DEP) Residential Energy Assessments (REA) program is a home assessment program that provides customers with a customized energy report that includes recommendations to help lower energy bills. Customers also receive an Energy Efficiency Starter Kit that contains two LEDs, a low-flow shower head, two faucet aerators (one kitchen faucet aerator and one bathroom faucet aerator), weather stripping, and outlet seals, which the energy specialist (or auditor) who performs the assessment can install free of charge. Up to six additional LEDs may also be installed based on the auditor's assessment findings. Auditors also encourage behavioral changes related to energy use and recommend higher-cost energy-saving investments to customers, such as a new HVAC system or energy-efficient appliances.

The REA program targets owner-occupied, single-family residences and relies primarily on direct mail marketing. Our evaluation includes 6,754 customers¹ who participated in the program between April 2016 and March 2017.

1.2 Evaluation Objectives

This evaluation included a gross impact evaluation, a net-to-gross (NTG) analysis, and a process evaluation. The overall objectives of the REA program evaluation were to:

- Estimate energy savings using monthly billing data
- Verify the accuracy of deemed per-unit savings estimates and develop in-service rates (ISRs)
- Estimate energy, summer demand, and winter demand savings at the measure level using engineering analysis
- Assess the likelihood that participants would have installed program measures had the energy efficiency kit not been provided (i.e., free-ridership [FR])
- Document spillover (SO) associated with program participation
- Identify the most successful components of the program's implementation
- Identify the barriers to participation and provide recommendations to address these barriers

To achieve these research objectives, Opinion Dynamics completed several data collection and analytic activities, including an interview with the program manager, a review of program materials, a participant telephone survey, an analysis of the survey results, an analysis of program-tracking data, a billing analysis, a deemed savings review, and an engineering analysis. Through the primary data collection efforts, the evaluation team developed estimates of measure-level ISRs and measure- and program-level net-to-gross ratios (NTGRs).

¹ Participant count is based on the *vendor_update_ts* date variable in the program-tracking data. This represents the date at which the customer was input into the database and is not the date of the assessment.

1.3 High-Level Findings

Table 1-1 presents the participant- and program-level net savings from the billing analysis for the evaluation period, which ran from April 1, 2016 through March 31, 2017. These results include the savings from the measures included in the distributed energy efficiency kits, as well as from additional LEDs provided to program participants. The results also include savings from behavioral changes that participants made based on the recommendations received during the assessment, as well as participant SO attributable to the program.

Table 1-1. Net Impact Results from Billing Analysis

Net Participant Savings			Net Program Savings		
Energy (kWh)	Summer Coincident Demand (kW)	Winter Coincident Demand (kW)	Energy (MWh)	Summer Coincident Demand (MW)	Winter Coincident Demand (MW)
1,095	0.132	0.1051	7,396	0.8912	0.7098

Using information collected during the participant survey, we estimated ISRs ranging from 41% for weather stripping to 85% for LEDs. Table 1-2 presents the ISR estimates and relative precision values for the measures included in the energy efficiency kits. We designed our sample to achieve a relative precision of 10% with 90% confidence; however, for most measures, we were unable to achieve this target due to low installation rates (IRs) among the surveyed participants.

Table 1-2. ISR Results and Relative Precision

	Kit Average	By Measure				
		LEDs	Faucet Aerators	Low-Flow Shower Head	Outlet Seals	Weather Stripping
Sample size (n)	149	132	133	149	92	103
Estimated ISR	61%	85%	54%	60%	51%	41%
Relative precision (at 90% confidence)	6.5%	5.3%	11.2%	10.9%	16.5%	18.5%

Table 1-3 presents per-participant gross impact results, based on an engineering review of the measures included in the energy efficiency kit. Note that the results incorporate ISRs. The table presents estimated gross savings for the kit only and for the kit plus additional LEDs, based on the average number provided per participant for the evaluation period.²

² Participants were eligible to receive up to six additional LEDs per home. Note that we did find instances in the program-tracking data where more than six were provided.

Table 1-3. Gross Impact Results per Home from Engineering Review

Measure	April 2016–March 2017				
	Energy Savings (kWh)	Summer Peak Demand (kW)	Winter Peak Demand (kW)	Percent of Total kWh Savings	
Energy Efficiency Kit	LEDs (two 9W bulbs)	58.8	0.0087	0.0042	13%
	Low-flow shower head (1)	120.1	0.0051	0.0102	26%
	Bathroom faucet aerator (1)	12.6	0.0012	0.0024	3%
	Kitchen faucet aerator (1)	83.1	0.0041	0.0082	18%
	Outlet seals (package of 6)	4.1	0.0006	0.0019	7%
	Weather stripping (roll of 17 feet)	33.5	0.0140	0.0066	1%
Total kit only	312.3	0.0336	0.0335	68%	
Additional LEDs (average of 4.4 bulbs)	146.0	0.0216	0.0105	32%	
Total per-home estimate	458.2	0.0552	0.0440	100%	

The gross impact results from the engineering analysis per household are far lower than those that we found using billing analysis. It is common to see a lower estimate from an engineering analysis, as it does not incorporate behavioral changes that customers make as a result of their interaction with the program.

Based on responses to the participant survey, measure-level NTGRs (defined as 1 - FR + SO) were calculated for customers who installed the measure (see Table 1-4). FR survey questions asked about each measure included in the Energy Efficiency Starter Kit, while SO questions asked about measures installed outside of the program for which no incentives were received but which were influenced by participation in the REA program. The evaluation team estimated FR at the measure level and SO at the program level.

Table 1-4. Net-to-Gross Results

Component	FR	SO	NTGR
Energy Efficiency Starter Kit*	23.7%	9.2%	85.5%
LEDs**	53.4%		55.8%
Faucet Aerators***	13.6%		95.6%
Low-Flow Shower Head	15.3%		93.9%
Outlet Seals	13.9%		95.3%
Weather stripping	32.1%		77.1%

*FR for the Energy Efficiency Kit is the weighted average of the measure-level FR values.

**FR for LEDs applies to LEDs in the kit as well as additional ones supplied.

*** FR questions for faucet aerators did not differentiate between kitchen and bathroom aerators.

For planning purposes, Duke Energy requires separate per-participant savings values for the energy efficiency kit and the additional bulbs distributed to participants. To provide these estimates, the evaluation team subtracted the engineering-derived net savings of the average number of additional bulbs distributed (4.4 LED bulbs) from the per-participant billing analysis savings. Taking this step ensures that savings from the additional bulbs are not double-counted, as these savings are already included in the billing analysis estimate (see Table 1-5).

Table 1-5. DSMore Inputs

Development of DSMore Inputs	kWh	Summer Peak Savings (kW)	Winter Peak Savings (kW)
Net energy efficiency kit savings per participant (excluding additional LEDs)	1,013.5	0.1199	0.0992
Net savings per additional LED bulb: Engineering analysis	18.5	0.0027	0.0013

1.4 Evaluation Recommendations

We have developed a series of recommendations based on the results of our evaluation:

- **Program energy savings would likely improve if auditors installed all possible measures from the kit. If auditors are unable to install all measures, they should document the barriers they face so that these can be assessed for ways to overcome them.** If the program could improve measure installation, it is likely that measure ISRs and program savings would improve, particularly because we found high persistence rates (PRs) for all measures. We understand that there may be safety concerns related to the installation of outlet seals, which may lead auditors to leave these measures uninstalled, but our understanding is that Duke Energy has an expectation that all measures will be installed during home assessments. It should be noted that in subsequent conversations, the evaluation team learned from Duke Energy that in the spring of 2017, after the close of this evaluation period, additional training of implementation staff occurred to address this issue and to instruct installers to document why measures were not installed.

Specifically, to address faucet aerators that do not fit, we recommend providing adaptors to participants to increase the installation rate of this measure.

- **Provide education on the benefits of early light bulb replacement.** Participants report “not needing them” as the most common reason for not installing the LEDs provided in the kit, suggesting that participants are waiting for their current bulbs to burn out. While more emphasis on installing all measures during the audit (see recommendation above) will help with ISRs, providing additional education on the savings potential of LEDs might lead to additional spillover savings by encouraging participants to more quickly replace inefficient bulbs in the future as well.
- **Channeling efforts by auditors that direct participants of the REA program to other Duke Energy programs could be improved.** While our data preparation for the billing analysis showed that a majority of REA participants have participated in other Duke Energy programs prior to participation, our survey findings showed that only a small portion of customers recalled hearing about other Duke Energy programs through the REA program. If Duke Energy is interested in using the REA program to channel customers to their other offerings, program staff may want to direct auditors to leave behind applicable materials to market its other programs. Additionally, we recommend that auditors familiarize themselves with Duke Energy’s other programs and make recommendations to program participants based on the programs that are most suitable.

According to Duke Energy, the program refreshed the technology and audit report in March 2017 to provide a more user-friendly report to the customer, outlining audit recommendations as well as cross-program recommendations. Additionally, the implementer now has the ability to report back to Duke Energy all recommendations, including cross-promotional referrals. Finally, in addition to including FindItDuke referrals in the audit report, advisors can now generate (where relevant) and email referrals to the customer during the assessment.

- **Ensure that auditors provide all applicable recommendations to customers during assessment visits.** Based on a review of the program-tracking data, several potential audit recommendations were never provided to DEP participants. Recommendations that auditors provided to REA participants in other jurisdictions, but not to DEP participants, included replace or install a heat pump, seal air leaks in duct systems, and turn down water heater temperature. In addition, most recommendations that were given were only provided to about 50% of participants. While it is expected that some recommendations do not apply to all participants, the incidence of recommendations not received appears to be too high to be the result of applicability alone.

The energy savings from the program could be improved if auditors provided customers with more recommendations on which they could act, since they may not be knowledgeable about the amount of energy that they could save by making changes, such as replacing furnace filters and adjusting thermostat settings. As noted above, Duke Energy has provided additional training to implementation staff to address providing recommendations to program participants that can help them save energy in their homes.

- **Consider adding “premium” audit services for a fee at the time of the audit or soon thereafter.** Based on interest from the program team, we asked surveyed participants about their desire for “premium” audit services, for a fee, that could be offered in addition to the standard assessment. Customers expressed interest in these additional premium audit services, particularly for blower door tests and thermal imaging. When scheduling an audit, customers could be given this option so that the auditor could come prepared to conduct the free audit, install measures from the energy efficiency kit, and provide additional fee-based audit services.

2. Program Description

The DEP REA program is a home assessment program that provides customers with a customized energy report with recommendations to help lower energy bills. The program targets residents of owner-occupied, single-family households who have been in their homes for at least four months and uses direct mailing as its main source of marketing and outreach.

2.1 Program Design

The REA program has two main components. The first is the home energy assessment, branded to customers as the "Home Energy House Call." During the assessment, energy specialists (auditors) enter participants' homes to inspect and assess energy using equipment in the home, including their heating and cooling equipment and the state of duct and home insulation. Auditors also look for places where customers could either make an improvement to equipment (e.g., replacing an outdated heat pump, removing older secondary appliances) or adjust the way that they use current equipment (e.g., adjusting the settings for their furnace fan, using window shades in the summer). These recommendations are meant to steer customers toward home improvements that will help them save more energy.

The second component is a free kit of low-cost, energy-efficient measures. The Energy Efficiency Starter Kit consists of two 9W LEDs, two faucet aerators, a low-flow shower head, outlet seals (a package of four outlet and two switch seals), and a 17-foot roll of closed cell foam weather stripping. Customers can also receive up to six additional LEDs, regardless of bulbs received from other Duke Energy programs.

In its program-tracking databases, DEP tracks the date that customers sign up for the program, the recommendations made by the auditor during the assessment, and the number of additional light bulbs given to the customer.

2.2 Program Implementation

During the evaluation period, DEP contracted with Franklin Energy to implement the REA program. The program was implemented using a multichannel marketing approach, including bill inserts and direct mail letters, as well as a paid search on Google. The successful launch of the program led to a backlog of participants, causing DEP to scale back its marketing during the evaluation period. It is worth noting that this evaluation is the first of the DEP REA program.

2.3 Program Performance

The program period under evaluation is April 1, 2016 through March 31, 2017. Over this period, the program served 6,754 unique participants. The program saved participants, on average, 1,095 kWh per household per year. Coincident demand savings per household were 0.132 kW in summer and 0.105 kW in winter.

3. Key Research Objectives

This evaluation included a gross impact evaluation, a NTG analysis, and a process evaluation. The overall objectives of the REA program evaluation were to:

- Estimate energy savings using monthly billing data
- Verify the accuracy of deemed per-unit savings estimates and develop ISRs
- Estimate energy, summer demand, and winter demand savings at the measure level using engineering analysis
- Assess the likelihood that participants would have installed program measures had the energy efficiency kit not been provided (i.e., FR)
- Document SO associated with program participation
- Identify the most successful components of the program's implementation
- Identify the barriers to participation and provide recommendations to address these barriers

4. Overview of Evaluation Activities

4.1 Program Staff Interview

Opinion Dynamics conducted an in-depth interview with the current REA program manager in October 2017. The purpose of the interview was to gauge the current environment of, and expectations for, the REA program, including the program's goals, successes, and challenges over the evaluation period. During the interview, we discussed the multichannel approach to marketing the program, as well as the receptiveness of DEP customers to participating in this offering.

4.2 Program Materials Review

Opinion Dynamics reviewed program materials, including implementation plans, marketing and outreach materials, training materials, and the program-tracking database. We found the program materials relating to the assessment, recommendations, and marketing to be complete and of high quality.

4.3 Participant Survey

Opinion Dynamics implemented a computer-assisted telephone interviewing (CATI) survey in February 2018. The survey gathered data to verify participation in the program; develop measure-level estimates of installation, persistence; and ISRs; estimate the program NTGR; and support our process evaluation.

The survey sample design and sample size were based on customers who participated between April 2016 and March 2017. Of the 6,754 participants in the database, we drew a random sample of 2,001 valid telephone numbers. We used this sample to complete 150 participant telephone surveys.

The average length of the interviews was approximately 27 minutes; the response rate was 23%.

4.4 Billing Analysis

Opinion Dynamics conducted a billing analysis to determine the net savings attributable to the REA program in 2016 and 2017. We used a linear fixed effects regression (LFER) model to estimate the overall net ex post program savings. The fixed effect in our model is the customer, which allows us to control for all household factors that do not vary over time. The billing analysis used customers who participated from April 2016 through March 2017 as the treatment group and those who participated from April 2017 through December 2017 as the comparison group. A summary of the billing analysis approach is provided in Section 5.1.1; a detailed description of the billing analysis methodology is presented in Appendix F.

4.5 Deemed Savings Review and Engineering Analysis

Opinion Dynamics conducted a review of Duke Energy's deemed savings values and assumptions for each of the measures included in the Energy Efficiency Starter Kit. The deemed savings review had two main objectives:

1. Develop updated measure-level savings algorithms and input assumptions that are consistent with standard industry practice and comparable with applicable technical reference manuals (TRMs)

Overview of Evaluation Activities

2. Develop a ratio between energy and demand savings that can be applied to the billing analysis energy savings to determine net demand savings.

To conduct our deemed savings review, we reviewed the Indiana TRM (IN TRM V2.2)³ and other secondary resources and developed per-unit savings estimates for each kit measure. For each of the reviewed measures, we identified recommendations and suggested approaches for quantifying savings for this evaluation.

Our evaluation also relied on telephone survey data to confirm measure installation and persistence, which were combined with engineering estimates for each measure to develop per-unit gross energy and demand savings by measure type. Program-level energy savings are estimated through a billing analysis. Appendix E provides more detail on the methods used in the deemed savings review and engineering analysis.

³ Indiana Technical Reference Manual Version 2.2. July 28, 2015. We reviewed several TRMs, including regional TRMs (e.g., Mid-Atlantic) as part of our engineering review. Many of these TRMs reference consistent methodologies for savings calculations and we ultimately followed the Indiana TRM methods to remain consistent with other Duke evaluations but made DEP-specific updates as applicable based on weather and survey data.

5. Impact Evaluation

5.1 Methodology

5.1.1 Billing Analysis

Opinion Dynamics conducted a billing analysis to determine the net savings of the REA program. Our billing analysis used participants from April 2016 through March 2017 as the treatment group and participants from April 2017 through December 2017 as the comparison group. This type of comparison group is referred to as a “future participant comparison group,” since comparison group participants participated in the future, relative to the evaluation period. A comparison group allows us to establish a counterfactual, i.e., the baseline energy that participants in the treatment group would have used in the absence of the program. In addition, because the comparison group represents energy use in absence of the program, results from the billing analysis are net results, and application of a NTGR to billing analysis results is unnecessary.

Our method requires pre- and post-installation electricity usage data for the treatment group. To be included in the treatment group, we need both pre- and post-installation usage data for at least nine months before and after participation. For the control group, the model includes only electricity usage data from before their participation.

Table 5-1 summarizes information about the treatment and comparison groups included in the analyses.

Table 5-1. Accounts Included in Final Billing Analysis Model

Metric	Treatment Group	Comparison Group
Months of participation	April 2016–March 2017	April 2017–December 2017
# customers included in the analysis	2,198	1,488
Usage data included	9+ Months of Pre- and Post- Participation Data	9+ Months of Pre-Participation Data

The number of customers included in the analysis is approximately 33% of those who participated during the evaluation period, and 38% of those who participated between April and December of 2017. The main reason customers were dropped from the analysis was due to participation in other Duke Energy programs (approximately 52% in the treatment group and 54% in the comparison group). The evaluation team recognizes that this is a large number of customers to exclude from the analysis but took this necessary step to limit the risk of the effects of other programs being confounded with the treatment effect of the REA program. It should be noted that while these customers were not included in the billing analysis model, average modeled savings are still applied to them, i.e., the program receives credit for their savings.

The billing analysis employed a LFER model, which accounts for time-invariant factors, such as square footage, appliance stock, habitual behaviors, household size, and other factors that do not vary over time. The model accounts for differences in weather and pre-program energy use between participants. We also added dummy variables for each calendar month, i.e., binomial terms with “1” signifying that the bill occurred in that month of year and “0” otherwise. The monthly variables help control for seasonal trends in energy use and allow for a more accurate estimate of baseline usage absent the program. The model includes interaction terms between weather and the post-participation period for the treatment group, to account for differences in weather patterns across years. A more detailed discussion of the billing analysis methodology, including data-cleaning steps, the comparison group assessment, and the final model, is provided in Appendix F.

5.1.2 Engineering Analysis

As part of our impact evaluation, Opinion Dynamics conducted an engineering analysis for each measure included in the REA program Energy Efficiency Starter Kit. The purposes of the engineering estimates were to:

1. Provide a ratio of kW coincident demand to kWh energy savings, which is then applied to the billing analysis energy savings to estimate demand savings
2. Provide insight into the individual measure contributions to the overall kit savings

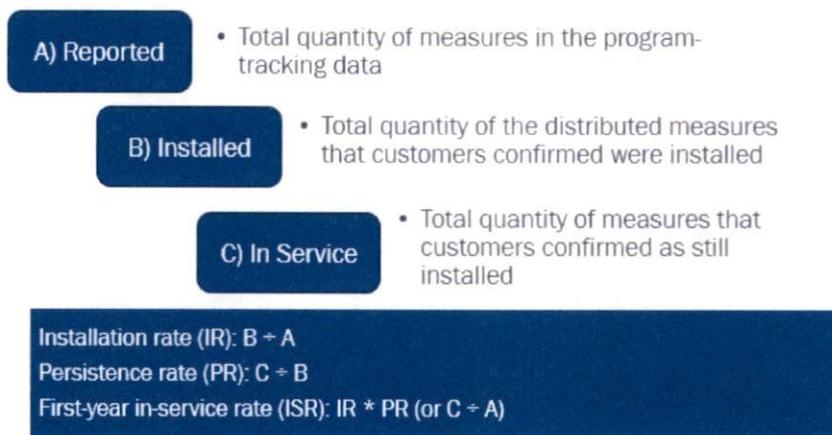
We used the IN TRM V2.2 and other references and assumptions to conduct our engineering analysis. The engineering analysis takes into consideration the measure ISRs to ensure only savings for installed measures are counted. Additional details and information on the engineering analysis are provided in Appendix E.

It should be noted that the billing analysis determines actual energy (kWh) impacts for the program; the engineering analysis only supplements the billing analysis for the two reasons mentioned above.

Installation Verification and Persistence

As part of the participant survey, we verified measure installation and persistence to obtain measure-level ISRs. Our engineering estimates use these values in calculations for annual per-customer savings (Figure 5-1). Specifically, we asked sampled participants to confirm the quantity of installed kit measures and, when necessary, to provide the corrected quantity. We then divided the number of measures verified by the respondent by the quantity that they received in the kit. This verified IR is the first component of the total ISR. Where applicable, we also asked participants to confirm whether program measures remained installed in their homes to create a PR. We then created a measure-specific total ISR by multiplying the two components.

Figure 5-1. Installation Rate Components



5.2 Results

5.2.1 Billing Analysis Results

This section provides billing analysis results and savings estimates for the DEP REA program evaluation period. Appendix F contains a detailed methodology for data cleaning and analysis, as well as complete results of the models. Table 5-2 shows the results of the billing model for REA program participants. The variable “Post” represents the unadjusted treatment effect, i.e., the change in average daily consumption (ADC) attributable to participation in the REA.

Table 5-2. Results of Billing Analysis Models

Variable	Coefficient
Post (REA program participation)	5.966773*
Cooling Degree-Days (CDD) ⁴	0.141938*
Heating Degree-Days (HDD)	0.041427*
Post-participation period CDD	-0.035910*
Post-participation period HDD	-0.020669*
Additional bulbs received	-0.193460*
Constant	34.271583*
R-squared	0.699741
Additional Terms	Included
Monthly effects included	YES
Post-participation period interacted with months included	YES

*p<0.01.

Due to post-participation period interaction terms in the model, it is necessary to recalculate the coefficient of the treatment effect (Post) by combining the average value with the coefficient for each interaction term. The coefficient seen in the regression represents the reduction of daily consumption during the post-participation period, separate of any effect of the included interaction terms. Making these adjustments (detailed in Appendix F), Opinion Dynamics found that REA program participants included in the model realized 3.0 kWh of daily energy savings, on average.

Table 5-3 shows the per-home and program-level savings for the program. Overall, customers who participated in the REA program saved 1,095 kWh per year. During the evaluation period, the program realized 7,396 MWh of energy savings.

⁴ A “degree-day” is a unit of measure for recording how hot or how cold it has been over a 24-hour period. The number of degree-days applied to any particular day of the week is determined by calculating the mean temperature for the day and then comparing the mean temperature to a base value of 65 (HDD) and 75 (CDD) degrees F. (The “mean” temperature is calculated by adding together the high for the day and the low for the day, and then dividing the result by 2.) If the mean temperature for the day is 5 degrees higher than 75, then there have been five CDD. On the other hand, if the weather has been cool, and the mean temperature is, say, 55 degrees, then there have been 10 HDD (65 minus 55). <http://www.srh.noaa.gov/ffc/?n=degdays>.

Table 5-3. Annual Savings from Billing Analysis

Annual Savings	
April 2016–March 2017 participants	6,754
Per-home daily savings (kWh)	3.0
Per-home annual savings (kWh)	1,095
Program savings (MWh)	7,396

5.2.2 Engineering Analysis Results

This section provides the results of the engineering analysis, including ex post deemed savings values, survey-based ISRs, and application of measure quantities to determine per-participant gross energy and demand savings. Table 5-4 shows the net of ISR ex post deemed savings values presented from the deemed savings review completed by the evaluation team (see Appendix E).

Table 5-4. Ex Post Deemed Savings for Energy Efficiency Starter Kit Measures

Measure	Ex Post Deemed Savings per Unit (kWh)	Ex Post Deemed Savings per Kit (kWh)*
LED	34.5	68.9
Low-flow shower head	198.8	198.8
Bathroom faucet aerator	22.8	22.8
Kitchen faucet aerator	149.9	149.9
Outlet seals	1.3	8.0
Weather stripping	4.8	82.2
Energy Efficiency Kit	N/A	530.6

*Energy efficiency kit contains two LEDs, six outlet seals and 17 feet of stripping; the per unit value for weather stripping is for 1 foot.

Table 5-5 provides the IR, PR, and ISR by measure. Except for LEDs, the evaluation found relatively low ISRs for measures included in the kit. Findings from the participant survey confirm that auditors often do not install kit measures during the assessments.

Table 5-5. Measure-Level ISRs

Measure	IR	PR	ISR
LEDs	88.4%	96.3%	85.2%
Low-flow shower head	67.1	90.0%	60.4%
Bathroom faucet aerator	58.2%	95.3%	55.4%
Kitchen faucet aerator			
Outlet seals	51.2%	100.0%	51.2%
Weather stripping	40.8%	100.0%	40.8%
Additional LEDs*	100.0%	96.3%	96.3%

*The IR of additional LEDs is assumed to be 100%. The PR is based on survey responses about LEDs provided in the kit.

To calculate per-participant engineering gross impacts, we multiplied the deemed savings values by measure-level ISRs and the average distributed quantity of each measure included in the kit. Table 5-6 shows the resulting estimated energy and demand savings for each measure included in the kit. In addition to the kit

measures, the program reported distributing 29,707 additional LEDs to customers through the assessments, an average of 4.4 per household. The estimated energy savings for these additional LEDs is also included in Table 5-6. The lighting portion of the kit and the additional LEDs accounted for approximately 42% of the energy savings for each household. These estimates of energy savings include the ISRs presented in Table 5-5 above.

Table 5-6. Engineering Analysis Gross Impact Results

Measure	April 2016–March 2017				
	Energy Savings (kWh)	Summer Peak Demand (kW)	Winter Peak Demand (kW)	Percent of Total kWh Savings	
Energy Efficiency Kit	LEDs (two 9W bulbs)	58.8	0.0087	0.0042	13%
	Low-flow shower head (1)	120.1	0.0051	0.0102	26%
	Bathroom faucet aerator (1)	12.6	0.0012	0.0024	3%
	Kitchen faucet aerator (1)	83.1	0.0041	0.0082	18%
	Outlet seals (package of 6)	4.1	0.0006	0.0019	7%
	Weather stripping (roll of 17 feet)	33.5	0.0140	0.0066	1%
Total kit only	312.3	0.0336	0.0335	68%	
Additional LEDs (average of 4.4 bulbs)	146.0	0.0216	0.0105	32%	
Total per-home estimate	458.2	0.0552	0.0440	100%	

Using the estimated savings from Table 5-6, we can calculate an overall kW per kWh savings ratio from the engineering analysis. Table 5-7 displays two different ratios: one for the kit only and one for the kit plus additional LEDs.

Table 5-7. Engineering Demand-to-Energy Ratios

	Total Gross Energy Savings (kWh)	Summer Coincident Peak Savings (kW)	Winter Coincident Peak Savings (kW)	Summer Ratio Multiplier (summer demand/energy savings)	Winter Ratio Multiplier (winter demand/energy savings)
Kit only	312.3	0.034	0.034	0.0001077	0.0001074
Kit + additional LEDs	458.2	0.055	0.044	0.0001205	0.0000960

5.2.3 Comparison between Billing Analysis and Engineering Results

We estimated that the program realized per-participant energy savings of 1,095 kWh during the evaluation period. Savings from our engineering analysis (458 kWh per participant) are smaller in comparison to the billing analysis results. Differences in the estimated savings from these analyses are expected, due to differences in methodology and the fact that the engineering analysis addresses only a subset of program savings (i.e., the Energy Efficiency Starter Kit and the additional LEDs that can be included). In contrast, the billing analysis provides a comprehensive estimate of program impacts. In addition to the components addressed by the engineering analysis, the billing analysis includes reduced energy consumption associated with improvements made due to assessment recommendations and behavioral changes. In addition, the billing analysis captures other unobserved factors that might have resulted in additional energy savings among participants.

6. Net-to-Gross Analysis

6.1 Methodology

Our participant survey included a NTG module to determine both program and measure-level NTGRs. A NTGR represents the portion of the gross energy savings associated with a program-supported measure or behavior change that would not have been realized in the absence of the program. In other words, a NTGR represents the share of tracked savings that are attributable to the program. A NTGR consists of FR and participant SO components.

6.1.1 Free-Ridership

Free-riders are program participants who would have paid for an assessment or installed energy efficiency products on their own, without the program. FR scores represent the percentage of savings that would have been achieved in the absence of the program. We categorized participants who reported that they would not have installed a measure without the program as 0% free-riders and participants who would have installed the measure without the program as 100% free-riders. Partial scores were assigned to customers who had plans to install the measure, but the program had at least some influence over that decision, particularly in terms of timing (i.e., the program accelerated the installation) or quantity (i.e., the program led to the installation of additional measures). We asked questions for each program measure, to enable us to develop measure-level FR estimates. The survey questions measured the following areas of program influence:

- **Influence on installation:** We asked participants about the likelihood that they would have installed each kit measure if they had not received it with the assessment.
- **Influence on timing:** We asked participants when they would have installed the measure on their own, whether that would have been around the same time, within six months, within a year, or longer.
- **Influence on quantity:** We asked participants whether they would have purchased the same quantity, more, or fewer on their own.

As part of the FR survey module, we included follow-up questions to check participant responses for consistency. We checked survey data for item non-response, and calculated the FR rate per the algorithms presented in Appendix C.

6.1.2 Spillover

SO represents energy savings from additional actions (expressed as a percentage of total program savings) that were the result of program participation, but that did not receive program financial support. While SO can result from a variety of measures, it is not possible to ask about all possible SO measures on a survey due to the need to limit its length. Thus, Opinion Dynamics chose to focus on actions that participants would reasonably take following their program participation and would do so without additional program support.

The participant survey included a series of questions to assess overall SO among program participants. To qualify for program-induced SO, we asked two main questions:

- Did the participant make any additional improvements (or change his or her behavior) to reduce household energy consumption since participation in the program for which he or she received no rebate or incentive?

- *If the respondent indicates making additional improvements (or changing behaviors):* How would the participant rate (on a scale from 0 to 10, with 0 indicating no influence and 10 indicating complete influence) how much influence the experience with the program had on the decision to make these improvements?

We asked participants to rate the degree to which the program influenced their action and to provide a rationale for their rating. We attributed SO for all respondents who gave a program influence score of 7 or higher. These respondents were asked a series of follow-up questions to assess the efficiency of measures.

To estimate the SO rate, we estimated savings for each SO measure using engineering algorithms and assumptions. We determined the program-level SO rate by dividing the sum of measure-level SO savings by the evaluated gross savings achieved by the sample of participants who received SO questions (Equation 6-1).

Equation 6-1. Spillover Rate

$$\text{Spillover Rate} = \frac{\text{Spillover Savings}}{\text{Evaluated Gross Savings in the Respondent Sample}}$$

6.1.3 Net-to-Gross Ratios

To calculate measure-level NTGRs, we combined the FR and SO rates using Equation 6-2:

Equation 6-2. Net-to-Gross Ratio

$$\text{NTGR}_{\text{measure}} = 1 - \text{FR}_{\text{measure}} + \text{SO}_{\text{program}}$$

6.2 Net-to-Gross Results

This section presents our estimates of FR and participant SO, and the resulting NTGRs. Both FR and SO components of the NTGR were derived from self-reported information from telephone interviews with program participants. The final NTGR is the percentage of gross program savings that can be attributed to the program. Table 6-1 shows FR estimates at the measure level and the SO estimate at the program level. Appendix A of this report contains the participant survey instrument, which includes the questions used in our algorithms. Appendix C provides an overview of the FR algorithm. We estimate program FR to equal 24% and program SO to equal 9%. The resulting NTGR for the REA program for the evaluation period is 86%. When applied to engineering gross estimates, the estimated SO rate of 9% represents an average of about 42 kWh per household.

Table 6-1. Measure-Level NTGRs

Component	FR	SO	NTGR
Energy Efficiency Starter Kit*	23.7%	9.2%	85.5%
LEDs**	53.4%		55.8%
Faucet aerators***	13.6%		95.6%
Low-flow shower head	15.3%		93.9%
Outlet seals	13.9%		95.3%
Weather stripping	32.1%		77.1%

*FR for the Energy Efficiency Kit is the weighted average of the measure-level FR values.

** FR and NTGR for LEDs applies to LEDs in the kit as well as additional ones supplied.

***FR questions for faucet aerators did not differentiate between kitchen and bathroom aerators.

6.2.1 Measure-Level Free-Ridership

Based on responses to measure-level FR questions in our participant survey, we calculated FR scores for customers who installed the measure. Table 6-2 shows the FR estimate for each measure, the resulting NTGR (excluding SO) as well as the relative precision, which was calculated around 1 - FR.

Table 6-2. Net-to-Gross Results and Relative Precision

	LEDs	Faucet Aerators	Low-Flow Shower Head	Outlet Seals	Weather Stripping
Sample size (n=)	102	106	114	73	65
FR estimate	46.6%	86.4%	84.7%	86.1%	67.9%
1 - FR	53.4%	13.6%	15.3%	13.9%	32.1%
Relative precision around 1 - FR (at 90% confidence)	11.4%	4.5%	4.5%	6.0%	9.9%

6.2.2 Spillover Savings

From our participant survey, we collected information on participants who were influenced by the program and installed additional energy-savings measures in their homes and for which they received no incentive or rebate. In all, 27 unique participants qualified for SO out of the survey sample of 150. The total breakdown of SO savings from these participants is shown in Table 6-3. We estimated a SO rate of 9% by taking the total measure-level SO estimates from survey respondents in Table 6-3 (i.e., 6,313 kWh) and dividing it by the total engineering savings from survey respondents (68,730 kWh).⁵

Table 6-3. Engineering Spillover Summary

Measure Type	Quantity of Measure Type	Total Energy Savings (kWh)	Total Coincident Demand Savings (kW)	Source of Savings
LEDs	80	2,756	0.61	Deemed Savings
Shower head (electric water heating)	5	994	0.13	Deemed Savings
Dishwasher	4	527	0.18	Indiana TRM v2.2
Aerator (electric water heating)	6	518	0.09	Deemed Savings
Clothes washer	6	463	0.06	IL TRM V6
Refrigerator	8	402	0.06	IL TRM V6
Smart thermostat	1	247	0.18	Indiana TRM
Windows	18	162	0.24	Indiana TRM v2.2
Freezer	3	113	0.02	Indiana TRM v2.2
Clothes dryer	1	93	0.01	IL TRM V3 v6.0
Attic insulation	1	25	0.02	IL TRM V3 v6.0
Attic tent*	1	14	0.01	NY TRM
Total	134	6,313	1.601	

*Attic tents cover the opening into the attic with an air sealing and insulating barrier. They are sometimes referred to as attach hatch covers.

⁵ Total engineering savings of participants is calculated by multiplying the average engineering savings per home (i.e., 458.2 kWh) by the total number of survey participants (i.e., 150). Note that numbers are rounded.

7. Process Evaluation

7.1 Researchable Questions

Based on discussions with Duke Energy program and evaluation, measurement, and verification (EM&V) staff, the evaluation team developed the following process-related research questions:

- What are the most successful components of the program? What improvements can be made to the program's design and implementation?
- Are customers satisfied with the participation process and program measures?
- Do participants find the assessment recommendations useful and actionable?
- Are eligible customers channeled into other Duke Energy programs?
- What kind of behavioral changes do participants make following the assessment?

7.2 Methodology

Our process evaluation relied primarily on our interview with program staff, our review of program materials and program-tracking data, and our analysis of the participant survey results. The full survey document is included in Appendix A.

7.3 Key Findings

7.3.1 Marketing and Channeling

Duke Energy has relied heavily on a direct mail marketing strategy to generate interest in the REA program. As shown in Figure 7-1, the majority of respondents (61%) reported first hearing about the program via a direct mailing from Duke Energy (e.g., a bill insert or a letter). Given the length of time between the customer learning about the program and taking the survey, we do not distinguish between the types of mailed items. Customers may simply remember receiving "something" in the mail.

Figure 7-1. Sources of Program Awareness



While REA auditors are instructed to inform program participants about other suitable Duke Energy programs for which they might be eligible, only about a quarter of REA participants (23%) recalled learning about other programs during their assessment. Of these participants, the largest share reported hearing about the Residential Smart \$aver program (37%), followed by the Home Energy Report (34%) and Power Manager (31%) programs (see Table 7-1). To ensure auditors mention applicable programs, the REA program manager has noted that the implementation team has received additional training in this area around the Spring of 2017.

Table 7-1. Channeling to Other Duke Energy Programs

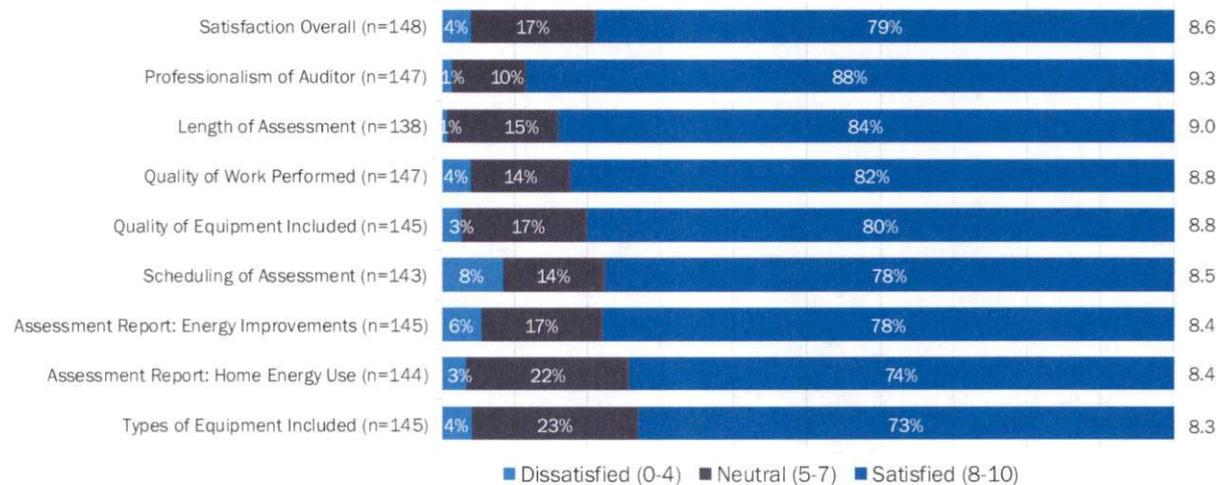
Which programs did you recall hearing about? (multiple responses accepted) (n=35)	
Smart \$aver	37%
Home Energy Report	34%
Power Manager	31%
Solar	9%
Other	17%
Don't know	23%

7.3.2 Satisfaction

Overall, program satisfaction was high across various aspects of the program. Seventy-nine percent of participants said that they were “satisfied” with the program overall. One-third of participants said that they have noticed savings on their Duke Energy bill since participating in the program. However, fewer than half of the participants who said that they were satisfied with the program also noticed savings on their bill. This suggests that satisfaction with the program is not directly tied to noticeable energy savings.

The areas of highest satisfaction relate to the quality and speed of the auditor’s work. Professionalism of the auditor was rated a 9.3 out of 10, the length of the assessment was rated 9.0, and the quality of work performed received an average rating of 8.8 (see Figure 7-2). Factors that were rated slightly lower were related to the equipment, the recommendations in the assessments and the scheduling process. Overall, however, all these aspects had a mean satisfaction rating above 8 out of 10 and low levels of dissatisfaction (a rating of 4 or less).

Figure 7-2. Program Satisfaction



7.3.3 Program Value

Understanding customers' motivations for participating can help in developing effective program marketing strategies. Opinion Dynamics asked participants for their reason(s) they participated in the program (Table 7-2). A majority (65%) mentioned saving money on energy bills as a reason for their participation; reducing energy consumption was also cited frequently (40% of participants). Only a small share of participants (9%) cited "it was free" as a reason for participation.

Table 7-2. Reasons for Participating

Why did you choose to participate? (n=150) multiple responses accepted	
Save money on energy/electric/gas bill	65%
Reduce energy consumption	40%
Learn more about home energy use and the program	16%
Make your home more comfortable	13%
It was free	9%
Other	5%
Don't know	2%

Note: Because multiple responses are accepted, total will not sum to 100%.

To assess participants' perception of the value of the REA offerings, the survey asked how much money they would be willing to pay for the energy assessment and for the kit. Participants reported valuing the program components much lower than their actual value. Customers who would be willing to pay for both components of the program (35% of participants) value the assessment and kit at \$95.50, which is just over half the stated value (\$180) on Duke Energy's website. The average willingness-to-pay for an assessment was \$67, based on respondents who would have paid more than \$0. Respondents were willing to pay less for the Energy Efficiency Starter Kit, valuing it at nearly \$29. The majority of participants found the LEDs most valuable among the kit items (64%); fewer participants found shower heads (28%) and faucet aerators (24%) to be the most valuable measures.

In addition, respondents were asked if they would be willing to pay for additional premium services as part of the energy assessment, including blower door testing, thermal imaging, air quality tests, and appliance inspections. Among the 44% who said that they would be willing to pay for additional audit services, blower door tests were most popular, as seen in Figure 7-3.

Figure 7-3. Additional Assessment Components



7.3.4 Experience with Measures and Program Improvement Suggestions

Respondents who installed some or all of the measures in the energy efficiency kit were asked whether they, the auditor, or both installed each measure. The majority of the installations of LEDs and water measures were performed by the auditor or both, whereas the outlet seals and weather stripping were predominately installed by the customers. The evaluation team believes that the lower installation rates by the auditors contributes to the lower installation rates of outlet seals and weather stripping overall (see Table 7-3). It should be noted that DEP program staff reported that auditors have been given instruction to perform these installations and the proportion of auditor installations has grown since the end of the evaluation period.

Table 7-3. Measure Installations

Measure	IR	Auditor Installed	Customer Installed	Both Installed
LEDs (n=129)	88%	52%	32%	15%
Faucet aerators (n=98)	58%	76%	22%	2%
Shower head (n=100)	67%	64%	34%	N/A
Outlet seals (n=49)	51%	18%	71%	6%
Weather stripping (n=49)	41%	16%	78%	2%

Additionally, respondents who did not install all of the measures in the energy efficiency kit were asked to provide reasons for not installing them. Common reasons varied across the measure types. For LEDs, the majority reported that they were waiting for their current bulbs to burn out to install their new ones (59%), suggesting that they may benefit from additional education about the energy savings benefits of replacing existing bulbs with LEDs. For faucet aerators, the most common response was that the measure did not fit (21%) or that the respondent did not see a need (21%), while for shower heads, the customers did not like the measure (24%) or already had an efficient shower head (24%). Most respondents who had not installed all their weather stripping reported that they did not see a need (30%), whereas for outlet seals respondents noted that they had not had the time to install them yet (30%). See Table 7-4 below for full details of the responses by measure.

Table 7-4. Common Reasons for Not Installing Measures

Common reasons for not installing	LEDs (n=17)	Faucet Aerators (n=75)	Shower Head (n=50)	Outlet Seals (n=50)	Weather stripping (n=71)
Haven't needed the equipment yet	59%	0%	0%	0%	1%
Did not see a need	0%	21%	2%	12%	30%
Haven't had time	0%	0%	2%	30%	10%
Already have the measure	0%	19%	24%	10%	17%
Did not like the measure	6%	0%	24%	0%	0%
Did not fit	18%	21%	12%	0%	3%
Did not receive enough / Only received one*	0%	20%	10%	10%	10%
Unable to install / Needed assistance	0%	4%	4%	18%	13%
Not enough water pressure	N/A	5%	16%	N/A	N/A
Don't know	18%	9%	6%	20%	11%

Note: The n values represent the number of respondents who said that they had installed only some or none of the measure.

*This response was given by participants who, for example, had more showers, outlet seals, and faucet aerators than could be accommodated by the measures in the kit. In the case of weather stripping, there was not enough to weather strip around all windows and doors in the home.

When asked about additional measures that would be of interest, the majority of participants reported that the kit equipment was sufficient (64%) or that they did not know what other equipment they would have liked in the kit (13%). The list of additional measures that participants reported that they would have liked to receive in addition to those in the kit are listed in Table 7-5.

Participants were also asked to rate their interest in a "Home Energy Score," which uses a 1-10 scale to rate the efficiency of one's home energy usage; 71% said that they were at least somewhat interested in receiving their score.

Table 7-5. Additional Measures

What equipment would you have liked to receive? (n=150)	
More weather stripping/outlet seals	5%
Insulation	4%
Variety of outlet seals	3%
More LED bulbs	2%
Other types of LEDs	1%
Other	8%
Nothing else	64%
Don't know	13%

Consistent with the high satisfaction levels, the majority of respondents (57%) did not have any recommendations to improve the program. Of the 43% who did provide suggestions for improvement, the most common were to include additional measures in the energy efficiency kit, to increase communication and follow-up regarding their assessment, and to increase the quantity of the current measures – all mentioned by less than 10% of respondents (see Table 7-6).

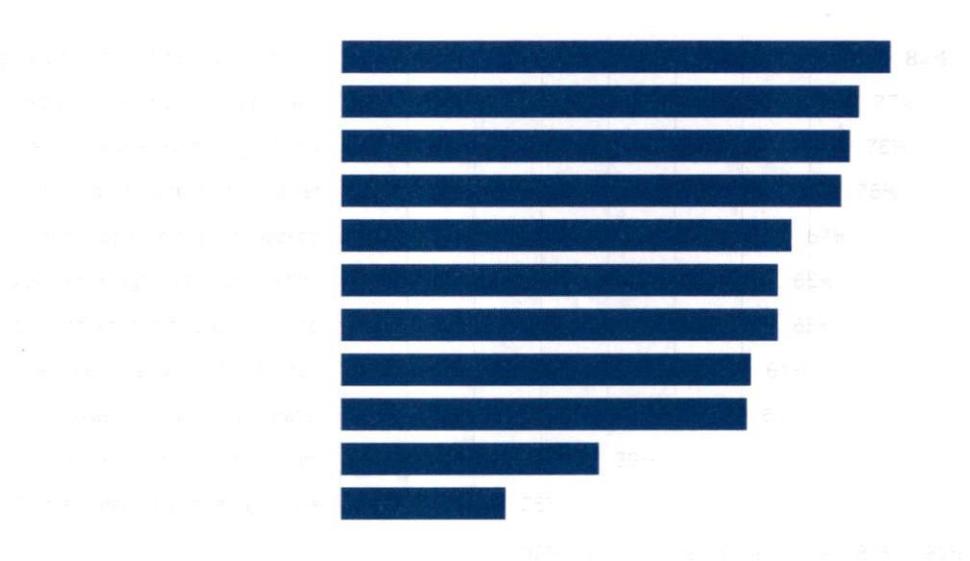
Table 7-6. Suggested Program Improvements

What, if anything, could be done to improve the program? (n=150)	
Add additional measures	9%
Have a pre- or post-audit/follow-up/communicate	7%
Increase current measures	6%
Have auditor install all measures/thorough assessment	5%
Scheduling/timing issues	5%
Offer rebates for repairs	3%
Increase program awareness	2%
Other	6%
Nothing	57%

7.3.5 Education

As part of the Energy Efficiency Starter Kit, customers received a “Department of Energy, Energy Savers Booklet.” This educational material outlines how energy is used, and wasted, in the home. The booklet provides insights about the effects that insulation, lighting, appliances, and other items can have on energy use in the home. Most respondents remember receiving the booklet (82%), and 80% of those participants reported taking the time to read it. Included in the booklet is a list of energy-saving tips. All participants were asked about any behavioral changes that they have made since participating and, overall, customers reported high uptake (see Figure 7-4). The only exceptions are two recommendations related to kitchen appliances.

Figure 7-4. Behavioral Changes



7.3.6 Assessment Recommendations

The program-tracking data includes information about specific recommendations on energy efficiency actions provided to DEP REA program participants during the assessment. The telephone survey then asked participants to confirm that they had received the tracked recommendations, which ones they had completed,

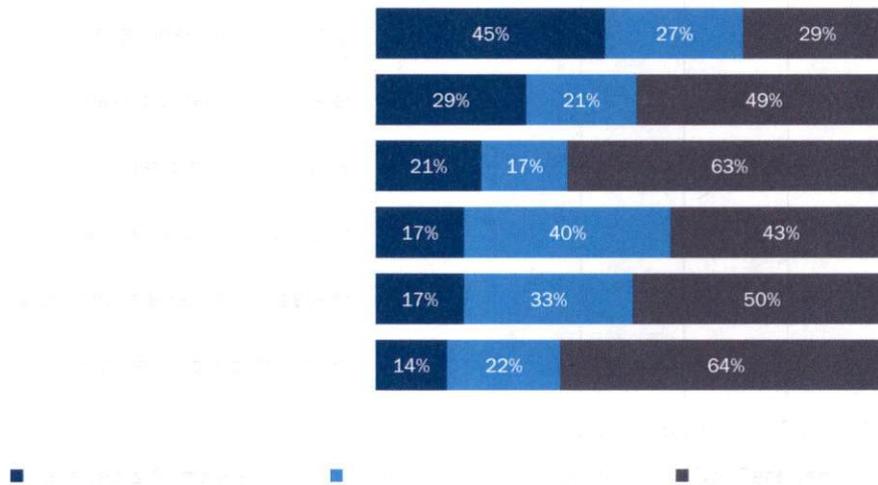
Process Evaluation

and whether they planned to implement any of those recommendations not yet completed. Note that to reduced survey response burden similar recommendations were grouped into categories for the survey. For example, “seal leaky fireplace”, “seal leaky windows”, and “seal leaky doors” were all grouped into the category “seal air leaks” in the survey instrument.

Based on the program tracking database, only six categories of recommendations available for auditors to suggest to participants were actually given during the evaluation cycle (shown in Figure 7-5). While there were additional recommendations that auditors had provided through the REA program in other jurisdictions, such as replace or install a heat pump, seal air leaks in duct systems, and turn down water heater temperature, it is not clear why these were not suggested to participants in DEP’s jurisdiction. One possible explanation is that they did not think that they were applicable. According to Duke Energy, the program implementer has since received additional training to ensure that all appropriate audit recommendations are provided. In addition, the program refreshed its audit reports in March 2017 to make sure to cover applicable audit recommendations.

The proportion of participants who received and acted on the given recommendations is shown by the dark blue bars in Figure 7-5. The lighter blue bars represent recommendations that were received but not carried out by participants. The grey bars show recommendations not received. Figure 7-5 shows that, on average, recommendations that were given were suggested, on average, just over 50% of the time (the sum of the dark and light blue bars). Among respondents who had not completed any of their recommendations, the majority said that they were currently planning to complete some or all of the remaining recommendations (54%), while the rest either had no plans to complete them (42%) or said that they did not know (4%).

Figure 7-5. Received and Completed Recommendations



8. Conclusions and Recommendations

The following discussion presents our findings and accompanying recommendations. Note that each finding does not have a recommendation.

Finding: Overall, Opinion Dynamics found that the DEP REA program performed well. Participants were highly satisfied with the program and net savings were in line with results from most prior evaluations of this program in other Duke Energy jurisdictions. We found that most participants first heard about the program through Duke Energy mailings, which is consistent with Duke's marketing efforts.

Finding: Like the REA program that operates in other Duke Energy jurisdictions, not all measures from the Energy Efficiency Starter Kit were installed by auditors. Almost half of the kit measures were not installed by the auditor during the home assessment (weighted average of 52% were installed). However, measures that save more energy, such as LEDs, faucet aerators, and low-flow showerheads were installed more frequently than outlet seals and weather stripping. Of the 50% who did not have their faucet aerators installed, about 20% said it was because they did not fit, and of the 11% of customers who did not have their free LEDs installed, about 60% said they were waiting for their old bulbs to burn out first.

Recommendation: Program energy savings would likely improve if auditors installed all possible measures from the kit. If auditors are unable to install all measures, they should document the barriers they face so that these can be assessed for ways to overcome them. If the program could improve measure installation, it is likely that measure ISRs and program savings would improve, particularly because we found high PRs for all measures. We understand that there may be safety concerns related to the installation of outlet seals, which may lead auditors to leave these measures uninstalled, but our understanding is that Duke Energy has an expectation that all measures will be installed during home assessments. It should be noted that in subsequent conversations, the evaluation team learned from Duke Energy that in the spring of 2017, after the close of this evaluation period, additional training of implementation staff occurred to address this issue and to instruct installers to document why measures were not installed.

Specifically, to address faucet aerators that do not fit, we recommend providing adaptors to participants to increase the installation rate of this measure.

Recommendation: Provide education on the benefits of early light bulb replacement. Participants report "not needing them" as the most common reason for not installing the LEDs provided in the kit, suggesting that participants are waiting for their current bulbs to burn out. While more emphasis on installing all measures during the audit (see recommendation above) will help with ISRs, providing additional education on the savings potential of LEDs might lead to additional spillover savings by encouraging participants to more quickly replace inefficient bulbs in the future as well.

Finding: While our data preparation for the billing analysis showed that a majority of REA participants have participated in other Duke Energy programs, our survey findings show showed that only a small portion of customers recalled hearing about other Duke Energy programs through the REA program.

Recommendation: Channeling efforts by auditors that direct participants of the REA program to other Duke Energy programs could be improved. While our data preparation for the billing analysis showed that a majority of REA participants have participated in other Duke Energy programs prior to participation, our survey findings showed that only a small portion of customers recalled hearing about other Duke Energy programs through the REA program. If Duke Energy is interested in using the REA program to channel customers to their other offerings, program staff may want to direct auditors to

Conclusions and Recommendations

leave behind applicable materials to market its other programs. Additionally, we recommend that auditors familiarize themselves with Duke Energy's other programs and make recommendations to program participants based on the programs that are most suitable.

According to Duke Energy, the program refreshed the technology and audit report in March 2017 to provide a more user-friendly report to the customer, outlining audit recommendations as well as cross-program recommendations. Additionally, the implementer now has the ability to report back to Duke Energy all recommendations, including cross-promotional referrals. Finally, in addition to including FindItDuke referrals in the audit report, advisors can now generate (where relevant) and email referrals to the customer during the assessment.

Finding: Based on a review of the program-tracking data, several audit recommendations were not provided to participants. Of the subset that were given to customers, these were provided about half the time. During assessment visits, auditors are expected to provide participants with all applicable recommendations to improve energy efficiency in their homes. It is unclear if recommendations were not provided because they were not applicable or for some other reason. According to Duke Energy, the program implementer has since received additional training to ensure that all appropriate audit recommendations are provided. In addition, the program refreshed its audit reports in March 2017 to make sure to cover applicable audit recommendations.

Recommendation: The energy savings from the program could be improved if auditors provided customers with more recommendations on which they could act. They may not be knowledgeable about the amount of energy that they could save by making changes, such as replacing furnace filters and adjusting thermostat settings. As noted above, Duke Energy has provided additional training to implementation staff to address providing recommendations to program participants that can help them save energy in their homes.

Finding: Based on interest from the program team, we asked customers about their desire for "premium" audit services that could be offered in addition to the standard assessment for some price. We found that customers do have some interest in having the option to pay for certain additional premium audit services, particularly for blower door tests and thermal imaging.

Recommendation: Consider adding premium audit services, particularly those in which customers have shown an interest. We recommend that DEP consider inquiring with customers about the premium audit services they would consider paying for out of pocket, perhaps through a survey effort with past program participants. It would also be worthwhile to ask customers how much they would be willing to pay for these services to understand how they are valued by program participants.

DSMore Inputs

9. DSMore Inputs

For planning purposes, Duke Energy requires separate per-participant savings values for the energy efficiency kit and the additional bulbs distributed to participants. To provide these estimates, the evaluation team took the following steps:

1. We estimated **net savings per additional LED** by multiplying gross savings per additional LED by the LED NTG ratio of 55.8 %.
2. We estimated **net savings of the kit exclusive of additional LEDs** by subtracting net savings for the average number of additional LEDs (4.4 bulbs) from per household savings based on the billing analysis.

Developing these separate inputs ensures that savings from the additional bulbs are not double-counted for planning purposes, as their savings are already included in the billing analysis estimate.

Table 9-1 presents the development of the DSMore inputs.

Table 9-1. Development of DSMore Inputs

Data for Development of DSMore Inputs	Energy Savings (kWh)*	Summer Coincident Demand (kW)	Winter Coincident Demand (kW)
Gross savings per additional LED bulb: Engineering analysis	33.19	0.00491	0.00238
LED NTG ratio = 55.8%			
Net savings per LED additional bulb: Engineering analysis	18.52	0.0027	0.0013
Program savings per participant: Billing analysis	1095	0.1313	0.1060
Net Savings for additional LED Bulbs	81.4881	0.0121	0.0058
Net kit savings per participant (excluding additional LEDs)	1013.51	0.1199	0.0992

The DSMore Inputs are included in a separately provided Microsoft Excel file.

10. Summary Form

Residential Energy Assessments

Completed EM&V Fact Sheet

The REA program provides, free of cost, a home energy assessment, which includes a kit of low-cost energy efficiency measures. A report of recommended upgrades and behavioral changes is given to the customer at the end of the assessment.

Date	October 12, 2018
Region(s)	Duke Energy Progress
Evaluation Period	April 2016–March 2017
Annual kWh Savings	7,395,630 kWh
Annual kWh Savings (per participant)	1,095 kWh
Coincident kW Impact	0.132 kW (Summer), 0.105 kW (Winter)
Measure Life	Not Evaluated
Net-to-Gross Ratio	85.5%
Process Evaluation	Yes
Previous Evaluation(s)	N/A

Evaluation Methodology

The evaluation team verified measure-level deemed savings estimates using an engineering analysis of savings assumptions and calculations. The evaluation team also leveraged a participant survey to verify installation and ISRs for each measure and to estimate a NTGR. The evaluation team conducted a billing analysis to estimate energy savings and used a combination of billing analysis and engineering analysis results to estimate coincident demand savings.

Impact Evaluation Details

- Residential customers in DEP service territory who have owned their single-family home for at least four months are eligible for the program. Homes must have an electric water heater, electric heat, or central air conditioning.
- The evaluation team based assumptions and inputs, for deemed savings and gross impacts on the IN TRM V2.2. The engineering analysis applied deemed savings values to measures distributed and in service (e.g., via an Energy Efficiency Starter Kit and additional LEDs).
- Results from the billing analysis reflect savings associated with measures installed, assessment recommendations, SO, and potential behavioral changes from energy efficiency knowledge gained through participation in the REA program.

For more information, please contact:

Aaiysha Khursheed, Ph.D.
Principal Consultant

858 401 7638 tel
akhursheed@opiniondynamics.com

7590 Fay Avenue, Suite 406
La Jolla, CA 92037



Opinion Dynamics

Boston | Headquarters

617 492 1400 tel
617 497 7944 fax
800 966 1254 toll free

1000 Winter St
Waltham, MA 02451

San Francisco Bay

510 444 5050 tel
510 444 5222 fax

1 Kaiser Plaza
Suite 445
Oakland, CA 94612

San Diego

858 270 5010 tel
858 270 5011 fax

7590 Fay Avenue
Suite 406
La Jolla, CA 92037

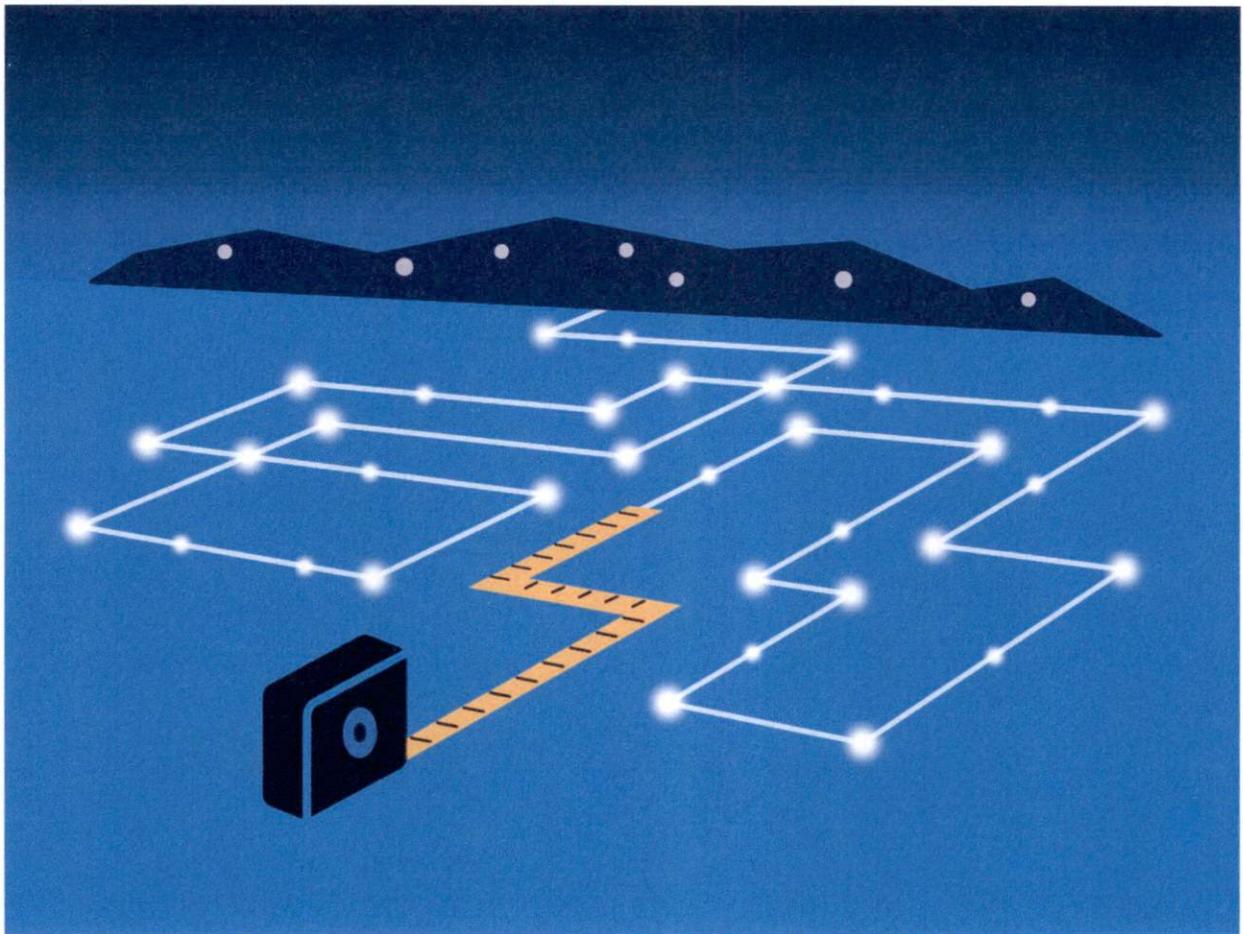
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617 492 1400 tel
617 497 7944 fax
800 966 1254 toll free
1000 Winter St
Waltham, MA 02451



Duke Energy Carolinas and Progress

EnergyWise Business Evaluation Report – Final

November 9, 2018

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Reimagine tomorrow.



Smart \$aver[®] Non-Residential Custom Program Years 2016-2017 Evaluation Report

Submitted to Duke Energy Carolinas
in partnership with Tetra Tech

November 29, 2018

Principal Authors:

Patrick Burns, Senior Vice President
Nathanael Benton, Senior Consultant
Carrie Koenig, Dan Belknap, Tetra Tech



EM&V Report for the EnergyWise Home Demand Response Program

Summer PY2018

Prepared for:

Duke Energy Progress



November 30, 2018

Presented by:
Stuart Schare
Managing Director

Primary contributing authors:
Peter Steele-Mosey, Associate Director

Navigant Consulting, Inc.
1375 Walnut Street
Suite 100
Boulder, CO 80302
phone 303.728.2500
fax 303.728.2501

navigant.com

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EM&V Report for the EnergyWise Home Demand Response Program

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Included as Separate Documents:

Appendix A: Output Summary

Filename: "DEP Ewise PY2018 Summer Mini Analysis Appendix A 2018-11-27.xlsx"
Description: Includes summary results and snapback calculation.

Appendix B: EnergyWise Home Ex-Ante Tool for Duke Energy Progress Territory

Filename: "DEP Ewise Summer 2018 Appendix B Summer Ex Ante Tool v04 2018-11-27.xlsx"
Description: Spreadsheet tool for estimating DR impacts of various cycling strategies (including full shed).



EM&V Report for the EnergyWise Home Demand Response Program

EVALUATION SUMMARY

The EnergyWise Home (EnergyWise) demand response (DR) program offers Duke Energy Progress (DEP) residential customers the opportunity to earn credits on their electricity bill by allowing DEP to remotely control air conditioners (A/C) in the summer months (available system wide) and space- and water-heating equipment in winter (Western region customers only) during times of seasonal peak consumption. This report covers the evaluation, measurement, and verification (EM&V) activities for the summer of 2018.

At the time of the single event called by Duke Energy during the summer 2018, there were 174,348 participants with a total of 223,312 A/C units enrolled in the program.

The test event took place between 5:00 PM and 5:30 PM on August 30, 2018. Participants were cycled at 100% during the 30-minute event. The average temperature experienced by participating households during this event was approximately 92.6 degrees Fahrenheit. **Navigant has estimated that the average impact per participant was 1.67 kW, with an aggregate program total impact of 291 MW.**

Evaluation Methods

Since Navigant's first evaluation of the EnergyWise program in 2011, Navigant has evaluated impacts using one of two approaches: a logger analysis or a "mini" analysis. For a logger analysis (for example the recently completed evaluation of the EnergyWise program for the winter of 2017/2018), data loggers are deployed to a representative sample of participant homes and regression analysis is used to estimate event impacts and project program capability. For a "mini" analysis, Navigant applies the regression-estimated DR coefficients (parameters) from the most recent metering study to the temperature values actually observed during the evaluation period events. This delivers the equivalent of an ex ante impact, or prediction, based on previously estimated impact/temperature relationships.

For PY2018, no logger analysis was carried out, but Navigant determined that the standard mini-analysis approach was also inappropriate. The most recent program year in which regression analysis had been applied to a 100% cycling event (like that called in the summer of 2018) was 2011. Given the length of time since that evaluation, Navigant believed that it would be imprudent to use the parameters estimate in PY2011.

Rather, Navigant first estimated a baseline average A/C demand at the event temperatures using the PY2016 summer logger data, and then applied the estimated percentage reduction from 2011 for the 100% cycling event deployed that year. We then further applied a reduction to account for device operability¹ (operability data were not collected or used in PY2011). In summary: the baseline is derived from PY2016 data, and the relative (percentage) impact of curtailment is derived from the 100% cycling event for which regression-estimated impacts are available (from 2011), slightly adjusted to account for the summer 2016 operability rate.

¹ Note that operability – whether a switch is physically operational when observed in person by a technician – is quite different from responsiveness (whether an operable switch responds to Duke's curtailment signal for any given event). Navigant's approach here implicitly assumes the same responsiveness rate for 100% cycling events as estimated for the 100% cycling event deployed in 2011. See report body for more details.



EM&V Report for the EnergyWise Home Demand Response Program

Evaluated Impacts

The principal EM&V findings regarding the PY2018 summer event demand impacts are as follows:

- **Full load shed of A/C units delivered an average impact of 1.67 kW per household.** The total estimated program impact of the 174,348 participating households was 291 MW.
- **The average snapback** impact during the first full hour beginning 15 minutes after the end of the event was 0.42 kW.
- **The impact of the 100% cycling event was higher in 2018 than in 2011, due to a shift in the participant baseline.** The estimated impact of the one-hour event in 2011 was 1.28 kW. The 2018 impact is higher than the 2011 impact for three reasons:
 - *The event was hotter.* The average event temperature in 2011 was 90 degrees, in 2018, 92.5 degrees.
 - *The event was later.* In 2011 the event lasted from 3:30 PM to 4:30 PM, in 2018 from 5:00 PM to 5:30PM, when A/C demand (all else equal) tends to be higher.
 - *The baseline is higher.*² The 2016 participant baseline demand is higher at every temperature value than that of 2011. Navigant believes that this may reflect a change in overall program participant characteristics (in 2011, there were fewer than 65,000 participating households, in 2018 there were nearly triple that number).

² Applying the PY2018 approach to the variable values from 2011 (timing and temperature of event) yields an average event impact of approximately 1.4 kW, an approximately 10% increase in the baseline from 2011 to 2018.



EM&V Report for the EnergyWise Home Demand Response Program

1. INTRODUCTION

The EnergyWise program provides residential customers the opportunity to earn credits on their electricity bill by allowing DEP to remotely control air conditioning (in the summer) and water heater and heat pump auxiliary heating strips (in the winter – Western region customers only) during times of seasonal peak consumption. This report covers the EM&V activities for the summer of 2018.

EM&V is a term adopted by DEP and refers generally to the assessment and quantification of the energy and peak demand impacts of an energy efficiency or DR program. For DR, estimating reductions in peak demand is the primary objective, as energy impacts are generally negligible. EM&V also can encompass an evaluation of program processes and customer feedback typically conducted through participant surveys. The summer PY2018 EM&V cycle did not include a process evaluation.

1.1 Objectives of the Evaluation

This report is intended to verify program impacts per the requirements established by the North Carolina Utilities Commission and the Public Service Commission of South Carolina. Since no data loggers were deployed to participating homes in the summer of PY2018, the principal objective of the evaluation is to apply the outputs from the data collected for the PY2016 and PY2011 logger studies to weather and participation data observed in the summer of 2018 to estimate the impact of direct load control on residential demand in the summer of 2018.

1.2 Program Overview

The EnergyWise program was developed in response to DEP's determination that a curtailable load program would be a valuable resource for the company, and that it would provide an opportunity to engage directly with customers to help reduce costly seasonal peak demand. The program seeks to attract DR resources by providing incentives to residential customers to allow DEP to remotely control the most important driver of summer peak demand typically found in the home: central air conditioning.

The program offers an annual bill credit of \$25 (per appliance type controlled) to customers that choose to allow DEP to control their central air conditioners (summer only), electric auxiliary heat strips and/or water heaters (winter only).

Eligibility. To be eligible for participation in the summer component of the EnergyWise program, a household must meet the following criteria:

- Participants must occupy the residence where the controls are installed. Renters must complete a Tenant Authorization Form and the landlord/property owner must approve.
- Residential electricity service must be in the name of the participant.
- Participants must be in an area that can receive the EnergyWise Home paging signal.
- Participation also requires that participants have electric central air conditioning or a centrally ducted heat pump.

Incentives. Each participant receives a \$25 yearly bill credit upon joining the summer program, and then an additional \$25 bill credit every 12 months they remain on the program.



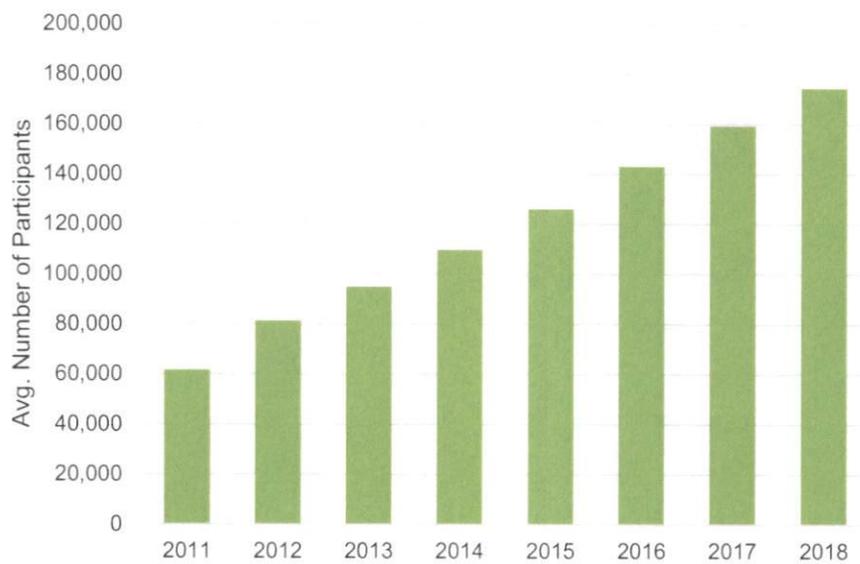
EM&V Report for the EnergyWise Home Demand Response Program

Marketing. DEP is responsible for all marketing of the EnergyWise program. Participant enrollments are generated through a mix of direct mail, bill inserts, email, outbound calling, and door-to-door canvassing.

1.3 Reported Program Participation

This section reports the overall program participation for the summer EnergyWise program in the summer of PY2018. In total, approximately 174,348 individual customers participated in the 100% full shed test event on August 30. Since 2011, program growth has been stable and consistent at approximately 15,000 incremental participants joining per year (see Figure 1).

Figure 1: Historical EnergyWise Summer Participation



Source: DEP

Altogether the 174,348 participants have a total of nearly 223,312 central air-conditioning units enrolled, or approximately 1.28 per participant. This ratio has not changed meaningfully over time – in the first year Navigant evaluated this program there were approximately 1.3 enrolled central air conditioners enrolled for each participant – a statistically identical value to that in PY2018.



EM&V Report for the EnergyWise Home Demand Response Program

2. EVALUATION METHODS

This section of the EM&V report describes the approach used to estimate the DR and snapback impacts of the EnergyWise program for PY2018.

Since Navigant's first evaluation of the EnergyWise program in 2011, Navigant has evaluated impacts using one of two approaches: a logger analysis or a "mini" analysis.

- For a **logger analysis** (for example the recently completed evaluation of the EnergyWise program for the winter of 2017/2018), data loggers are deployed to a representative sample of participant homes and regression analysis is used to estimate event impacts and project program capability.
- For a **"mini" analysis**, Navigant applies the regression-estimated DR coefficients (parameters) to the actually observed temperature values. This delivers the equivalent of an ex ante impact, or prediction, based on previously estimated impact/temperature relationships.

For PY2018, no logger analysis was carried out, but Navigant determined that the standard mini-analysis approach was also inappropriate. The most recent program year in which regression analysis had been applied to a 100% cycling event (like that called in the summer of 2018) was 2011. Given the length of time since that evaluation, Navigant believed that it would be imprudent to use the parameters estimate in PY2011.

Rather, Navigant proceeded in the following fashion (each step of which is described in greater detail in the sub-section of the same name below:

- **Baseline Estimation:** Navigant used the logger data from PY2016 – the most recently collected summer A/C logger data – to estimate the relationship between A/C demand, temperature, and time of day. These estimated values deliver a baseline on the event day.
- **Demand Response Impact Estimation:** To quantify the impact, Navigant applied the percentage DR impact estimated in PY2011 for the only 100% cycling event that Navigant has had the opportunity to evaluate using logger data.
- **Snapback Impact Estimation:** Snapback impacts are estimated using the same approach deployed in prior non-logger-data evaluation year, as a function of: total energy "taken back" (as a percentage of energy saved), and the demand pattern of snapback in the period following the event.

2.1 Baseline Estimation

Navigant estimated the relationship between average participant demand and temperature using the regression specification below, applied to the PY2016 logger data:

$$y_{k,t} = \alpha_k + \beta_1 q_{hour,t} CDH70_{k,t} + \varepsilon_{k,t}$$

Where:

$y_{k,t}$ = The average AC demand of household k in a quarter hour of sample t .



EM&V Report for the EnergyWise Home Demand Response Program

- α_k = The individual-level fixed effect.
- $qh_{i,t}$ = A dummy variable equal to 1 when the quarter hour of sample t falls in the i -th hour of the day. For example, if quarter hour t fell in the first quarter hour of the day then $qh_{1,t}$ would equal 1 and $qh_{2,t}$ to $qh_{96,t}$ would all be equal to 0.
- $CDH70_{k,t}$ = The cooling degree quarter-hours observed by household k in quarter hour of sample t .

This regression was estimated using the PY2016 EM&V participants' logger data from non-event weekdays on which the average temperature observed by participants between 3pm and 6pm was greater than 90 degrees Fahrenheit. Altogether 17 days met these inclusion criteria.³

The parameters estimated in the regression above ($\hat{\alpha}_k$, and $\hat{\beta}_1$) are applied to the cooling degree hours of interest to deliver an estimate of participant baseline A/C demand at that temperature.

Note that the regression equation specified above is relatively simple – for example it does not control explicitly for heat build-up⁴, humidity, the day of the week or other factors. This is an explicit modeling decision made in order to facilitate the use of model outputs in an ex-ante impact estimation tool that Navigant has developed for Duke Energy. The inclusion of additional variables and interactions (e.g., humidity, moving averages, etc.) would require considerably more complex inputs for that tool, substantially reducing its usefulness as a quick reference, without meaningfully improving its predictive accuracy (given the model uncertainty).

Following estimation of the regression model, Navigant generated fitted values for all observations included in the regression. A fitted value is simply what the model predicts the value of the left-hand side variable should be, given the variable values included on the right-hand side. The differences between the fitted and actual values are the residuals.

Figure 2 compares the average predicted baselines between 3pm and 6pm during the days included in the regression data set with the actual average A/C demand observed in the same period. Each marker in the plot below reflects a different daily average temperature/demand pair, with the green diamond markers representing the fitted values and the grey circles representing the actuals.

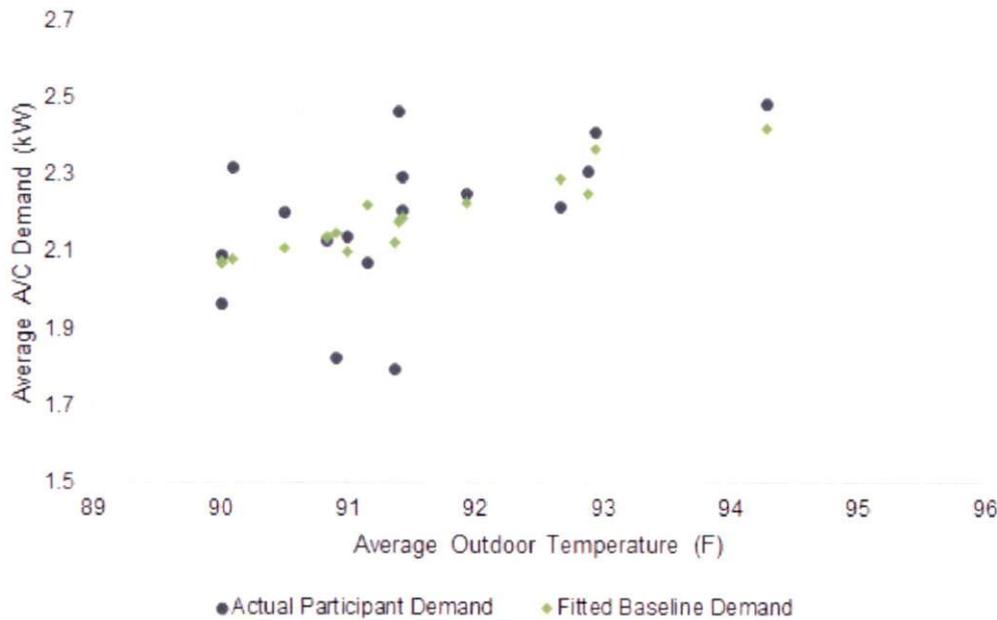
³ Note that not all participant data were included for each day. For example, data for the Group 1 participants were included on July 14, 2016, but not Group 2 data, as Group 2 was curtailed on this date, but Group 1 was not. For more details regarding the group-split of EM&V participants, please refer to the PY2016 Summer evaluation report of the EnergyWise program.

⁴ Heat build-up is at least partially controlled for implicitly in that temperature time-series are highly auto-correlated



EM&V Report for the EnergyWise Home Demand Response Program

Figure 2: Demonstration of Baseline In-Sample Accuracy



Source: Navigant logger data and analysis.

Two things are immediately clear:

- **There is no apparent bias:** actuals appear as likely to be higher as they are to be lower than the fitted values.
- **Accuracy improves at higher temperatures:** the average distance between predicted and actual demand values is much smaller at the higher temperatures (i.e., 92 degrees and above) than at lower temperatures (i.e., 90 to 92 degrees)

To generate the baseline used for this evaluation, Navigant applied the average event period temperatures to the regression-estimated parameters. This delivers an estimate of average per-participant demand during the two quarter-hours of the event on 2018-08-30.

2.2 Demand Response Impact Estimation

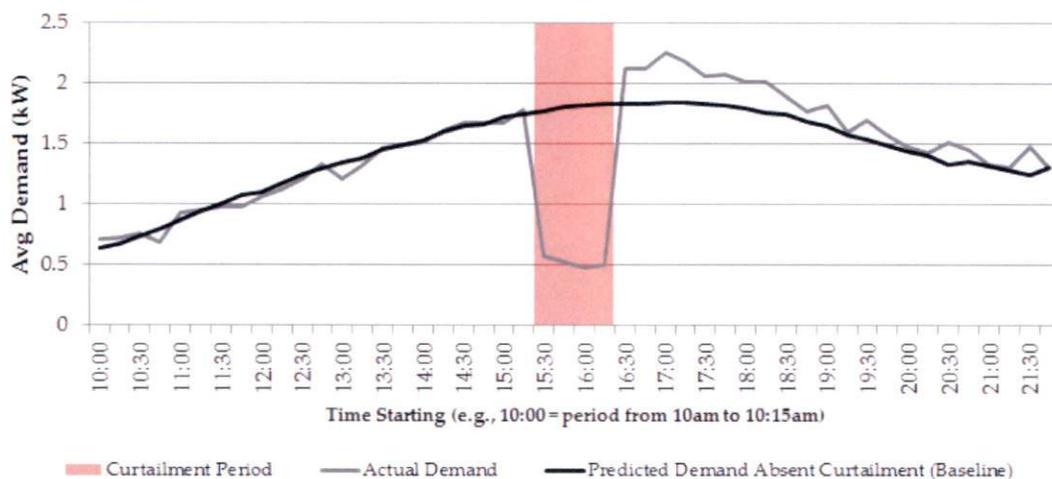
Navigant applied two factors to the baseline to obtain an estimated impact:

- **DR impact.** In PY2011, Navigant estimated that the average DR impact during the hour-long 100% cycling event that year was 71% of baseline demand (see Figure 3, below)
- **Operability Adjustment.** In PY2016, Navigant tracked device operability (quite different from device responsiveness – see below). Altogether, Navigant technicians found that approximately 3% switches inspected during logger deployment were entirely non-functional. Therefore a 3% adjustment (decrement) is applied to estimated impacts to account for population operability.



EM&V Report for the EnergyWise Home Demand Response Program

Figure 3: PY2011 100% Cycling Event Load Profile and Baseline



Source: Navigant logger data and analysis.

A standard output of Navigant's logger data analyses of the EnergyWise home program is a "responsiveness rate". This is an estimate of what proportion of switches appear to have been non-responsive to the Duke curtailment signal for any given event.⁵ This is a parallel analysis to Navigant's impact analysis and has no effect on those values (i.e., the actuals shown in Figure 3 include responsive, non-responsive, and not-in-use A/C units). Implicitly then, Navigant's estimated impact for PY2018 assumes the same non-responsiveness as occurred during the 2011-08-25 100% cycling event.⁶

Navigant did consider an alternate approach (which can be implemented in the Appendix B spreadsheet with the selection of the appropriate toggle) in which the baseline is reduced only by the operability factor and the average non-responsive rate estimated in a prior year. This approach (though it delivers a higher impact) was rejected based on Navigant's observation that the difference between load remaining after 100% curtailment (i.e., the distance between the grey line and the x-axis in Figure 4) is larger than can be explained entirely by the historically estimated responsiveness.

2.3 Snapback Impact Estimation

Snapback is defined as the increase in demand observed in the period following a DR event. During a DR event A/C cycling limits the run time of the A/C compressor. This results in the indoor temperature rising above the thermostat set-point. When cycling ceases, the compressor needs to run for longer than it normally would in order to restore the indoor temperature to the thermostat set-point.

Snapback is calculated as a function of:

⁵ More specifically, it is a measure of what proportion of participating A/C units had no observable reduction in demand in the first hour of an event, beginning fifteen minute after the start of the event. For more details, refer to the summer 2016 evaluation report.

⁶ The specific values were: 13% of devices in use but non-responsive, 11% of devices not in use. These are in line with the non-responsiveness rates of the other events that summer, and in other years – i.e., between 10% and 15%.



EM&V Report for the EnergyWise Home Demand Response Program

- **Post-Event Snapback Pattern.** The magnitude of snapback in each quarter hour of the snapback period relative to the average quarter-hourly demand reduction in the curtailment period. This pattern is drawn from the estimated snapback impacts of the 100% cycling event deployed in PY2011.
- **Energy Take-Back.** The proportion of the energy (kWh) consumption reduction in the curtailment period that is "taken back" during the snapback period. This is also drawn from the 2011 evaluation.

The mechanics of the snapback approach are clearly laid out in the Appendix A workbook (see the "Snapback Calculation" tab).



EM&V Report for the EnergyWise Home Demand Response Program

3. IMPACT FINDINGS

This section provides the estimated demand reduction and snapback impacts for the EnergyWise program for the summer 2018. Section 2 details how these impacts were estimated. Impacts are based on the results of the weather observed during the PY2018 event, the baseline temperature/demand relationships estimated using the PY2016 logger data, and the relative DR impacts estimated for 100% cycling as part of the PY2011 evaluation.

The estimated DR impact by quarter-hour of event is shown in Table 1.

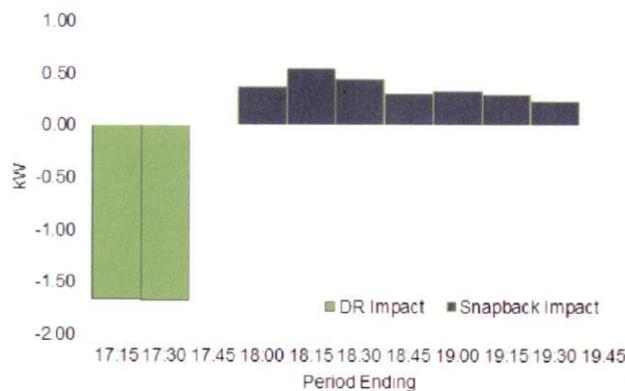
Table 1. Average Demand Reduction Impact by Quarter Hour

Quarter-Hour of Event	Time Starting	Time Ending	Average DR Impact Per Participant (kW)	Relative Precision (90% Confidence) ⁷	Total Program DR Impact (MW)
1	17:00	17:15	1.66	8.0%	289
2	17:15	17:30	1.68	7.9%	292
Average of All Quarter-Hours	17:00	17:30	1.67	7.8%	291

Source: Navigant Analysis, PY2018 weather, PY2016 modeling results, and PY2011 estimated impacts

Quarter-hour by quarter-hour results are shown graphically in Figure 4. In Figure 4, DR impacts are represented as a negative number (i.e., demand reduction) and snapback as a positive (i.e., an increase in demand). Note that due to ramping, there is still a lingering DR impact in the first quarter-hour of the snap-back period (i.e., the negative value of the first gray column in the figure below). The average snapback impact during the first full hour beginning 15 minutes after the end of the event was 0.42 kW.

Figure 4. Demand Response and Snapback Impacts – 2018-08-30



Source: Navigant Analysis, PY2018 weather, PY2016 modeling results, and PY2011 estimated impacts

⁷ Confidence intervals estimated here are based on the confidence interval surrounding the estimated *baseline* (based on PY2016 data) rather than an estimated impact. Because no actual events were observed, there is no estimated uncertainty associated with the impacts, only with the baseline. Although this approach is deemed acceptable by many state-wide groups (see for example [Section 6.2.3 of the PA Act 129 Evaluation Framework](#)), it will tend to overstate precision.



EM&V Report for the EnergyWise Home Demand Response Program

DR impacts for this event are substantially higher than the 1.28 kW impact estimated for the PY2011 100% cycling event. This is due to three factors:

- *The event was hotter.* The average event temperature in 2011 was 90 degrees, in 2018, 92.5 degrees.
- *The event was later.* In 2011 the event lasted from 3:30 PM to 4:30 PM, in 2018 from 5:00 PM to 5:30PM, when A/C demand (all else equal) tends to be higher.
- *The baseline is higher.*⁸ The 2016 participant baseline demand is higher at every temperature value than that of 2011. Navigant believes that this may reflect a change in overall program participant characteristics (in 2011, there were fewer than 65,000 participating households, in 2018 there were nearly triple that number).

⁸ Applying the PY2018 approach (i.e., the Appendix B workbook) to the variable values from 2011 (timing and temperature of event) yields an average event impact of approximately 1.4 kW, an approximately 10% increase in the baseline from 2011 to 2018.



EM&V Report for the EnergyWise Home Demand Response Program

4. SUMMARY FORM

**EnergyWise Home
Summer PY2018**
Completed EMV Fact Sheet

Description of Program

Duke Energy's EnergyWise program is a DR program offered to residential customers in the DEP territory.

EnergyWise is a direct load control program. Participants receive an incentive to allow Duke Energy to control their air conditioners (in the summer), their heat pump auxiliary heat strips (in the winter), or their electric water heaters (winter or summer). Only participants in the Western region are curtailed in the winter.

This report evaluates the impact of the program in the summer of 2018. Only a single event was called, on August 30, 2018.

Date:	2018-11-30
Region:	DEP
Evaluation Period	Summer 2018
DR Event Impact per Participant (kW)	
Central Air Conditioner	1.67
DR Event Program Impact (MW)	
Central Air Conditioner	291
Net-to-Gross Ratio	1

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Evaluation Methods

Navigant estimated DR impacts for central air conditioners by estimating an average participant baseline demand, and applying the percentage impact for 100% cycling estimated as part of the 2011 evaluation (the only time a 100% cycling event has been evaluated with logger data).

The participant baseline to which the 2011 percentage impact was applied was estimated using relationships estimated from non-event-day logger data collected as part of the PY2016 summer evaluation. These estimated relationships were applied to PY2018 event temperature values to deliver the estimated baseline.

Impact Evaluation Details

- **Full load shed of A/C units delivered an average impact of 1.67 kW per household.** The total estimated program impact of the 174,348 participating households was 291 MW.
- **The impact of the 100% cycling event was higher in 2018 than in 2011, due to a shift in the participant baseline.** The estimated impact of the one-hour event in 2011 was 1.28 kW. The 2018 impact is higher than the 2011 impact for three reasons:
 - *The event was hotter.* The average event temperature in 2011 was 90 degrees, in 2018, 92.5 degrees.
 - *The event was later.* In 2011 the event lasted from 3:30 PM to 4:30 PM, in 2018 from 5:00 PM to 5:30PM, when A/C demand (all else equal) tends to be higher.
 - *The baseline is higher.*⁷ The 2016 participant baseline demand is higher at every temperature value than that of 2011. Navigant believes that this may reflect a change in overall program participant characteristics (in 2011, there were fewer than 65,000 participating households, in 2018 there were nearly triple that number).

5. CONCLUSION

The principal EM&V findings regarding the summer event demand impacts for PY2018 are as follows:

- **Full load shed of A/C units delivered an average impact of 1.67 kW per household.** The total estimated program impact of the 174,348 participating households was 291 MW.
- **The average snapback** impact during the first full hour beginning 15 minutes after the end of the event was 0.42 kW.
- **The impact of the 100% cycling event was higher in 2018 than in 2011, due to a shift in the participant baseline.** The estimated impact of the one-hour event in 2011 was 1.28 kW. The 2018 impact is higher than the 2011 impact for three reasons:
 - *The event was hotter.* The average event temperature in 2011 was 90 degrees, in 2018, 92.5 degrees.
 - *The event was later.* In 2011 the event lasted from 3:30 PM to 4:30 PM, in 2018 from 5:00 PM to 5:30PM, when A/C demand (all else equal) tends to be higher.
 - *The baseline is higher.*⁹ The 2016 participant baseline demand is higher at every temperature value than that of 2011. Navigant believes that this may reflect a change in overall program participant characteristics (in 2011, there were fewer than 65,000 participating households, in 2018 there were nearly triple that number).

⁹ Applying the PY2018 approach to the variable values from 2011 (timing and temperature of event) yields an average event impact of approximately 1.4 kW, an approximately 10% increase in the baseline from 2011 to 2018.

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Energy Efficiency Education in Schools Program Year 2017 – 2018 Evaluation Report

Submitted to Duke Energy Carolinas and Progress
in partnership with Research into Action

March 20th, 2019

Principal authors:

Andrew Dionne, Byron Boyle, Greg Sidorov, Nexant

Ryan Bliss, Jordan Folks, Adam Wirthschafter, Nathaniel Albers,
Research into Action

I/A

Duke Energy Progress
 Supplemental Exm Exhibit 1, page 1 of 8 - NO CHANGE
 Vintage 2016 True Up - January 1, 2016 to December 31, 2016
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H																																																				
				=(A-B)*C	=(B-D)			=0 (from page 2)																																																				
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement ⁽¹⁾	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement ⁽²⁾	NC Residential Adjusted Revenue Requirement																																																		
Residential Programs																																																												
EE Programs																																																												
1	Appliance Recycling Program	27	206,569	\$ 76,177	\$ (137,009)	11.75%	\$ 25,049	\$ (111,960)	85.4384204%	E1 * F1	\$ (95,657)	\$ -																																																
2	Energy Education Program for Schools	1,081	2,553,617	\$ 1,053,087	\$ 827,497	0.00%	\$ -	\$ 827,497	85.4384204%	E2 * F2	\$ 707,000	\$ -																																																
3	Energy Efficient Lighting	6,006	41,649,479	\$ 33,998,827	\$ 15,552,184	11.75%	\$ 2,167,481	\$ 17,719,665	85.4384204%	E3 * F3	\$ 15,139,401	\$ -																																																
4	Home Energy Improvement Program	1,904	6,289,383	\$ 6,991,688	\$ 6,013,170	11.75%	\$ 114,976	\$ 6,128,146	85.4384204%	E4 * F4	\$ 5,235,791	\$ -																																																
5	Multi-Family	1,480	12,462,490	\$ 7,155,924	\$ 2,045,220	11.75%	\$ 600,508	\$ 2,645,727	85.4384204%	E5 * F5	\$ 2,260,468	\$ -																																																
6	Neighborhood Energy Saver	304	1,992,091	\$ 1,167,680	\$ 2,052,535	0.00%	\$ -	\$ 2,052,535	85.4384204%	E6 * F6	\$ 1,753,654	\$ -																																																
7	Residential Energy Assessments	716	5,942,895	\$ 4,853,362	\$ 1,417,924	11.75%	\$ 403,664	\$ 1,821,588	85.4384204%	E7 * F7	\$ 1,556,336	\$ (29,272)																																																
8	Residential New Construction	4,359	9,954,835	\$ 19,280,066	\$ 9,405,615	11.75%	\$ 1,160,240	\$ 10,565,863	85.4384204%	E7 * F7	\$ 9,027,307	\$ 27,008																																																
9	Save Energy and Water Kit	5,914	17,671,857	\$ 13,873,513	\$ 674,538	11.75%	\$ 1,550,880	\$ 2,225,418	85.4384204%	E8 * F8	\$ 1,901,362	\$ -																																																
10	Residential Home Advantage	-	-	\$ -	\$ -	11.75%	\$ -	\$ -	85.4384204%	-	\$ -	\$ -																																																
11	Total for Residential Conservation Programs	21,790	98,723,216	\$ 89,090,325	\$ 37,851,674	-	\$ 6,022,805	\$ 43,874,479	-	-	\$ 37,485,662	\$ (2,265)																																																
12	My Home Energy Report	16,905	102,921,181	\$ 7,524,461	\$ 5,890,093	11.75%	\$ 192,038	\$ 6,082,131	85.4384204%	E11 * F11	\$ 5,196,477	\$ -																																																
13	Total Residential Conservation and Behavioral Programs	38,695	201,644,397	\$ 96,614,785	\$ 43,741,767	-	\$ 6,214,843	\$ 49,956,610	-	-	\$ 42,682,139	\$ (2,265)																																																
<table border="0" style="width: 100%;"> <tr> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>NC Residential Peak Demand Allocation Factor (2)</td> <td>NC Allocation Factor (2)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>14</td> <td>EnergyWise</td> <td>34,059</td> <td>-</td> <td>\$ 70,854,171</td> <td>\$ 6,887,758</td> <td>11.75%</td> <td>\$ 7,516,054</td> <td>\$ 14,403,811</td> <td>86.1687719%</td> <td>46.8604563%</td> <td>\$ 6,220,487</td> <td>\$ -</td> </tr> <tr> <td>15</td> <td>Total Residential</td> <td>77,754</td> <td>201,644,397</td> <td>\$ 167,468,956</td> <td>\$ 50,629,524</td> <td>-</td> <td>\$ 13,730,897</td> <td>\$ 64,360,421</td> <td>-</td> <td>-</td> <td>\$ 48,902,626</td> <td>\$ (2,265)</td> </tr> </table>																														NC Residential Peak Demand Allocation Factor (2)	NC Allocation Factor (2)				14	EnergyWise	34,059	-	\$ 70,854,171	\$ 6,887,758	11.75%	\$ 7,516,054	\$ 14,403,811	86.1687719%	46.8604563%	\$ 6,220,487	\$ -	15	Total Residential	77,754	201,644,397	\$ 167,468,956	\$ 50,629,524	-	\$ 13,730,897	\$ 64,360,421	-	-	\$ 48,902,626	\$ (2,265)
								NC Residential Peak Demand Allocation Factor (2)	NC Allocation Factor (2)																																																			
14	EnergyWise	34,059	-	\$ 70,854,171	\$ 6,887,758	11.75%	\$ 7,516,054	\$ 14,403,811	86.1687719%	46.8604563%	\$ 6,220,487	\$ -																																																
15	Total Residential	77,754	201,644,397	\$ 167,468,956	\$ 50,629,524	-	\$ 13,730,897	\$ 64,360,421	-	-	\$ 48,902,626	\$ (2,265)																																																
Non-Residential Programs																																																												
EE Programs																																																												
15	Business Energy Report	740	4,546,814	\$ 309,365	\$ 69,516	-	\$ -	\$ 69,516	85.4384204%	E13 * F13	\$ 59,393	\$ -																																																
16	Energy Efficiency for Business	10,201	71,154,719	\$ 47,824,935	\$ 14,159,310	11.75%	\$ 3,955,711	\$ 18,115,021	85.4384204%	E14 * F14	\$ 15,477,188	\$ -																																																
17	Energy Efficient Lighting	2,818	12,180,303	\$ 10,884,259	\$ 1,889,694	11.75%	\$ 1,096,861	\$ 2,946,556	85.4384204%	E16 * F16	\$ 2,517,491	\$ -																																																
18	Small Business Energy Saver	8,675	49,979,294	\$ 32,988,897	\$ 9,336,274	11.75%	\$ 2,779,183	\$ 12,115,457	85.4384204%	E17 * F17	\$ 10,151,255	\$ -																																																
19	Total for Non-Residential Conservation Programs	22,434	137,861,130	\$ 92,007,456	\$ 25,454,794	-	\$ 7,791,755	\$ 33,246,550	-	-	\$ 28,405,327	\$ -																																																
20	EnergyWise for Business	573	412,047	\$ 164,696	\$ 1,112,815	11.75%	\$ (111,404)	\$ 1,001,411	86.1687719%	E19 * F19	\$ 7,054,004	\$ -																																																
21	Commercial, Industrial, & Governmental Demand Respo	(5,344)	-	\$ (10,684,733)	\$ -	11.75%	\$ -	\$ -	86.1687719%	E20 * F20	\$ -	\$ -																																																
22	Total for Non-Residential DSM Programs	(4,821)	412,047	\$ (10,520,037)	\$ 1,112,815	-	\$ (111,404)	\$ 1,001,411	86.1687719%	NC Allocation Factor (2)	\$ 7,054,004	\$ -																																																
23	Total Non Residential	17,613	138,273,177	\$ 81,487,419	\$ 26,567,609	-	\$ 7,680,352	\$ 34,247,961	53.1395437%	-	\$ 35,459,331	\$ -																																																
24	Total All Programs	90,366	339,917,574	\$ 248,956,374	\$ 77,197,134	-	\$ 21,411,248	\$ 98,608,382	-	-	\$ 84,361,957	\$ (2,265)																																																
<p>(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages</p> <p>(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak</p>																																																												
24	DSDR	281,372	33,941,086	-	7,944,728	-	\$ -	\$ 7,944,728	-	-	\$ -	\$ -																																																
25	Total with DSDR	371,738	373,858,660	\$ 248,956,374	\$ 85,141,861	-	\$ 21,411,248	\$ 106,553,110	-	-	\$ 84,361,957	\$ (2,265)																																																

Duke Energy Program
 Supplemental Event Exhibit 1, page 2 of 8 NO CHANGE
 Voltage 2016 True-Up - January 1, 2016 to December 31, 2016
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

A	B	C	D	E	F	G	H	I	2016 PPI True-Up										K				
									J	K	L	M	N	O	P	Q	R	S		T	U	V	
Program	Income Tax Rate	Income Taxes	Net-of-Tax PPI - Total NPV	Discount Rate	PPI Amortization Period	Voltage Year 2016 - Year 1 PPI	Income Tax Goro-Up Factor	Adjusted PPI	Original Voltage 2016 PPI	PPI Over / (Under) Collection	Years at Original PPI Level	Cumulative PPI Over / (Under) Collection	Carrying Costs	PPI Over/(Under) Collection w/Carst	1 Prior Period PPI	Voltage 2009 PPI	Voltage 2010 PPI	Voltage 2011 PPI	Voltage 2012 PPI	Voltage 2013 PPI	Voltage 2014 PPI	Voltage 2015 PPI	PPI Values for Test Period
Residential Programs																							
EE Programs																							
1	Appliance Recycling Program	\$ 21,402	\$ 8,049	\$ 13,353	6.75%	10	\$ 1,879	\$ 42,399	\$ 3,011	\$ -	1	\$ -	\$ -	\$ -	\$ 116,821	\$ -	\$ 28,547	\$ 20,992	\$ 38,647	\$ 17,038	\$ 7,506	\$ 4,492	\$ 119,833
2	Energy Education Program for Schools	\$ -	\$ -	\$ -	6.75%	N/A	\$ -	\$ 42,399	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Energy Efficient Lighting	\$ 1,851,861	\$ 696,487	\$ 1,155,374	6.75%	5	\$ 278,872	\$ 42,399	\$ 448,586	\$ 448,586	\$ -	1	\$ -	\$ -	\$ 2,844,679	\$ -	\$ 546,425	\$ 309,670	\$ 621,854	\$ 636,857	\$ 197,625	\$ 132,048	\$ 3,293,264
4	Home Energy Improvement Program	\$ 98,234	\$ 36,946	\$ 61,288	6.75%	10	\$ 8,634	\$ 42,399	\$ 13,823	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 363,911
5	Multi-Family	\$ 513,064	\$ 192,964	\$ 320,100	6.75%	5	\$ 77,539	\$ 42,399	\$ 114,282	\$ 114,282	\$ -	1	\$ -	\$ -	\$ 193,329	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 193,329
6	Neighborhood Energy Loan	\$ -	\$ -	\$ -	6.75%	N/A	\$ -	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	Residential Energy Assessments	\$ 344,884	\$ 129,711	\$ 215,173	6.75%	5	\$ 32,122	\$ 42,399	\$ 83,543	\$ 16,121	1	\$ (27,422)	\$ (1,899)	\$ (29,321)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,543
8	Residential New Construction	\$ 993,296	\$ 372,828	\$ 620,468	6.75%	10	\$ 87,026	\$ 42,399	\$ 139,487	\$ 164,787	\$ 25,301	1	\$ 25,301	\$ 1,707	\$ 27,008	\$ 174,649	\$ -	\$ -	\$ -	\$ -	\$ 47,653	\$ 54,738	\$ 72,258
9	Save Energy and Water Kit	\$ 1,374,047	\$ 498,352	\$ 875,695	6.75%	5	\$ 208,210	\$ 42,399	\$ 320,973	\$ 320,973	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,973
10	Residential Home Advantage	\$ -	\$ -	\$ -	6.75%	10	\$ -	\$ 42,399	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ 178,476	\$ 8,018	\$ 79,940	\$ 60,450	\$ -	\$ 517	\$ -	\$ 178,476
11	Total for Residential Conservation Programs	\$ 5,145,789	\$ 1,918,337	\$ 3,227,452			\$ 707,317	\$ 1,133,704	\$ 1,133,583	\$ (2,121)		\$ (2,121)	\$ (143)	\$ (2,265)	\$ 3,866,042	\$ 18,424	\$ 677,879	\$ 526,684	\$ 829,834	\$ 702,066	\$ 474,715	\$ 626,461	\$ 4,989,746
12	My Home Energy Report	\$ 164,074	\$ 61,700	\$ 102,374	6.75%	1	\$ 102,374	\$ 164,074	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 164,074
13	Total Residential Conservation and Behavioral Programs	\$ 5,309,864	\$ 1,979,037	\$ 3,330,827			\$ 809,688	\$ 1,297,778	\$ 1,295,657	\$ (2,121)		\$ (2,121)	\$ (143)	\$ (2,265)	\$ 3,866,042	\$ 18,424	\$ 677,879	\$ 526,684	\$ 829,834	\$ 702,066	\$ 474,715	\$ 626,461	\$ 5,153,820
14	EnergyWise	\$ 6,676,491	\$ 2,435,815	\$ 4,240,676	6.75%	10	\$ 568,568	\$ 913,314	\$ 913,314	\$ -	1	\$ -	\$ -	\$ -	\$ 1,343,881	\$ 136,141	\$ 1,043,048	\$ 781,456	\$ 147,959	\$ 301,384	\$ 369,522	\$ 265,371	\$ 4,155,187
15	Total Residential	\$ 11,786,355	\$ 4,414,852	\$ 7,371,503			\$ 1,378,255	\$ 2,209,092	\$ 2,208,773	\$ (2,121)		\$ (2,121)	\$ (143)	\$ (2,265)	\$ 7,099,923	\$ 153,564	\$ 1,728,927	\$ 1,308,140	\$ 1,177,773	\$ 1,003,450	\$ 844,137	\$ 891,833	\$ 9,309,017
Non-Residential Programs																							
EE Programs																							
16	Business Energy Report	\$ -	\$ -	\$ -	6.75%	1	\$ -	\$ -	\$ -	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17	Energy Efficiency for Business	\$ 3,379,697	\$ 1,271,107	\$ 2,108,590	6.75%	3	\$ 799,757	\$ 42,399	\$ 1,281,869	\$ 1,281,869	\$ -	1	\$ -	\$ -	\$ 3,481,402	\$ 109,910	\$ 452,376	\$ 649,907	\$ 722,666	\$ 678,479	\$ 438,885	\$ 869,180	\$ 4,763,272
18	Energy Efficient Lighting	\$ 902,966	\$ 339,606	\$ 563,360	6.75%	5	\$ 136,460	\$ 42,399	\$ 216,730	\$ 216,730	\$ -	1	\$ -	\$ -	\$ 803,120	\$ -	\$ 134,853	\$ 74,572	\$ 153,307	\$ 171,971	\$ 116,196	\$ 151,840	\$ 1,021,849
19	Small Business Energy Loan	\$ 1,374,406	\$ 503,648	\$ 870,758	6.75%	3	\$ 161,889	\$ 42,399	\$ 900,809	\$ 900,809	\$ -	1	\$ -	\$ -	\$ 193,062	\$ -	\$ -	\$ -	\$ -	\$ 80,709	\$ 213,329	\$ 241,951	\$ 1,479,092
20	Total for Non-Residential Conservation Programs	\$ 6,657,153	\$ 2,507,961	\$ 4,149,192			\$ 1,063,115	\$ 2,401,207	\$ 2,401,209	\$ -	1	\$ -	\$ -	\$ -	\$ 4,833,684	\$ 169,910	\$ 587,228	\$ 724,479	\$ 875,771	\$ 813,159	\$ 774,194	\$ 762,681	\$ 3,224,812
21	EnergyWise for Business	\$ 195,995	\$ 70,104	\$ 125,891	6.75%	1	\$ 125,891	\$ 195,995	\$ 195,995	\$ -	1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 195,995
22	Commercial, Industrial, & Governmental Demand Resp	\$ 195,995	\$ 70,104	\$ 125,891	6.75%	3	\$ 125,891	\$ 42,399	\$ 195,995	\$ 195,995	\$ -	1	\$ -	\$ -	\$ 195,995	\$ -	\$ 45,722	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,414	\$ 350,952
23	Total for Non-Residential DSM Programs	\$ 391,990	\$ 140,208	\$ 251,782			\$ 247,782	\$ 391,990	\$ 391,990	\$ -	1	\$ -	\$ -	\$ -	\$ 391,990	\$ -	\$ 91,444	\$ 45,370	\$ 45,970	\$ 29,429	\$ 34,853	\$ 29,429	\$ 440,406
24	Total Non-Residential	\$ 7,049,148	\$ 2,618,173	\$ 4,430,975			\$ 1,310,897	\$ 2,792,717	\$ 2,792,717	\$ -	1	\$ -	\$ -	\$ -	\$ 5,225,674	\$ 169,910	\$ 678,672	\$ 770,449	\$ 901,750	\$ 842,588	\$ 803,612	\$ 792,075	\$ 3,770,300
25	Total All Programs	\$ 18,835,503	\$ 6,993,025	\$ 11,842,478			\$ 2,689,152	\$ 5,001,809	\$ 5,001,480	\$ (329)	1	\$ (329)	\$ (143)	\$ (2,265)	\$ 12,325,597	\$ 323,474	\$ 1,406,549	\$ 1,628,629	\$ 1,729,584	\$ 1,805,518	\$ 1,648,790	\$ 1,618,908	\$ 16,579,317

(1) Energy Efficient Benchmarking impacts reflect cumulative cost-to-serve of end-of-voltage-year, including impacts for participants from prior voltage years.
 (2) Total System DSM programs, allocated to Residential and Non-Residential based on contribution to retail system peak.

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 Vintage 2017 True Up - January 1, 2017 to December 31, 2017
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	H		
				-(A-B)*C	=(B+C)			=(H from page 2)	=(H from page 2)		
	System kW Reduction - Summer Peak	System Energy Reduction (KWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement ⁽¹⁾	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement ⁽²⁾	NC Residential Adjusted Revenue Requirement	NC Residential Adjusted Revenue Requirement
Residential Programs											
EE Programs											
1 Appliance Recycling Program	-	-	\$ -	\$ 5,580	11.75%	\$ (656)	\$ 4,930	85.5082864%	E1 * F1	\$ 4,275	\$ -
2 Energy Education Program for Schools	996	2,353,765	\$ 1,376,442	\$ 835,991	0.00%	\$ -	\$ 835,991	85.5082864%	E2 * F2	\$ 718,841	\$ -
3 Energy Efficient Lighting	4,798	29,678,583	\$ 30,351,056	\$ 10,904,279	11.75%	\$ 2,284,996	\$ 13,189,275	85.5082864%	E3 * F3	\$ 11,277,923	\$ (26,349)
4 Home Energy Improvement Program	1,975	7,357,330	\$ 6,313,442	\$ 6,961,463	11.75%	\$ (76,142)	\$ 6,885,320	85.5082864%	E4 * F4	\$ 5,887,519	\$ 9
5 Multi-Family	2,052	16,150,639	\$ 10,140,052	\$ 2,514,413	11.75%	\$ 898,715	\$ 3,411,128	85.5082864%	E5 * F5	\$ 2,918,508	\$ 1,926
6 Neighborhood Energy Saver	328	2,200,240	\$ 1,117,743	\$ 1,781,211	0.00%	\$ -	\$ 1,781,211	85.5082864%	E6 * F6	\$ 1,523,083	\$ -
7 Residential Energy Assessments	933	7,734,231	\$ 5,532,365	\$ 1,861,486	11.75%	\$ 428,743	\$ 2,292,229	85.5082864%	E7 * F7	\$ 1,965,046	\$ (31,407)
8 Residential New Construction	5,266	12,245,876	\$ 21,481,837	\$ 11,671,724	11.75%	\$ 1,152,688	\$ 12,824,412	85.5082864%	E7 * F7	\$ 10,965,935	\$ 46,805
9 Save Energy and Water Kit	8,377	25,021,451	\$ 17,187,186	\$ 888,869	11.75%	\$ 1,915,052	\$ 2,803,921	85.5082864%	E8 * F8	\$ 2,397,585	\$ -
10 Residential Home Advantage	-	-	\$ -	\$ -	11.75%	\$ -	\$ -	85.5082864%		\$ -	\$ -
11 Total for Residential Conservation Programs	24,733	102,742,114	\$ 93,503,123	\$ 37,427,021		\$ 6,603,396	\$ 44,030,417			\$ 37,649,655	\$ (9,016)
12 My Home Energy Report	19,964	117,851,515	\$ 6,972,509	\$ 6,703,153	11.75%	\$ 25,774	\$ 6,728,928	85.5082864%	E11 * F11	\$ 5,796,545	\$ -
13 Total Residential Conservation and Behavioral Programs	44,698	220,593,629	\$ 100,475,632	\$ 44,180,174		\$ 6,629,171	\$ 50,809,345			\$ 43,446,200	\$ (9,016)
14 EnergyWise	33,428	-	\$ 82,480,503	\$ 6,502,032	11.75%	\$ 8,969,245	\$ 13,071,277	NC Residential Peak Demand Allocation Factor	NC Allocation Factor (2)	\$ 6,673,593	\$ 8,452
15 Total Residential	78,124	220,593,629	\$ 162,886,135	\$ 50,682,206		\$ 13,198,416	\$ 63,880,622			\$ 50,115,793	\$ (564)
Non-Residential Programs											
EE Programs											
16 Business Energy Report	-	-	\$ 737	\$ 20,330		\$ -	\$ 20,330	85.5082864%	E13 * F13	\$ 17,384	\$ -
17 Energy Efficiency for Business	17,038	103,355,897	\$ 77,891,372	\$ 23,749,807	11.75%	\$ 6,596,634	\$ 28,346,441	85.5082864%	E14 * F14	\$ 24,338,556	\$ 43,892
18 Energy Efficient Lighting	2,024	7,872,565	\$ 8,198,437	\$ 1,324,943	11.75%	\$ 925,136	\$ 2,250,078	85.5082864%	E16 * F16	\$ 1,924,000	\$ (8)
19 Non-Res SmartSaver Performance	58	435,108	\$ 335,899	\$ 147,360	11.75%	\$ 22,377	\$ 169,137	85.5082864%	E17 * F17	\$ 144,797	\$ -
20 Small Business Energy Saver	8,500	45,011,098	\$ 26,945,534	\$ 8,770,755	11.75%	\$ 2,135,534	\$ 10,906,290	85.5082864%	E18 * F18	\$ 9,325,781	\$ 94,962
21 Total for Non-Residential Conservation Programs	27,620	156,684,668	\$ 114,371,959	\$ 32,012,995		\$ 9,679,480	\$ 41,692,475			\$ 35,650,521	\$ 138,845
22 EnergyWise for Business	2,887	983,712	\$ 858,655	\$ 1,390,549	11.75%	\$ 82,498	\$ 1,328,052	86.1579245%	E19 * F19	\$ -	\$ -
23 Commercial, Industrial, & Governmental Demand Response	1,969	-	\$ 3,551,967	\$ 1,393,650	11.75%	\$ 253,602	\$ 1,642,252	86.1579245%	E20 * F20	\$ 7,151,808	\$ -
24 Total for Non-Residential DSM Programs	4,855	983,712	\$ 4,410,622	\$ 2,784,199		\$ 191,305	\$ 2,975,304	86.1579245%	NC Allocation Factor (2)	\$ 7,151,808	\$ -
25 Total Non-Residential	32,475	157,668,380	\$ 118,782,581	\$ 34,797,195		\$ 9,870,585	\$ 44,667,780	51.7294791%		\$ 42,802,329	\$ 138,845
26 Total All Programs	130,600	378,262,008	\$ 281,668,716	\$ 85,479,401		\$ 23,069,001	\$ 108,548,402			\$ 92,922,123	\$ 222,346
(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages											
(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak											
24 DSDR	291,816	35,518,685	\$ -	\$ 11,146,179		\$ -	\$ 11,146,179			\$ -	\$ -
25 Total with DSDR	404,416	413,780,693	\$ 281,668,716	\$ 96,625,580		\$ 23,069,001	\$ 119,694,581			\$ 92,922,123	\$ 138,281

v2017 mechanism allows negative PP

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 Vintage 2018 True Up - January 1, 2018 to December 31, 2018
 Docket Number E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H			
				=(A-B)*C	=(B-D)			*(From page 2)			
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement ¹⁾	NC Retail kWh Sales Allocation Factor	NC Residential Unadjusted Revenue Requirement ²⁾	NC Residential Adjusted Revenue Requirement	
Residential Programs											
EE Programs											
1	Appliance Recycling Program	-	\$ -	\$ -	11.75%	\$ -	\$ -	85.5608674%	E1 * F1	\$ -	\$ 119,754
2	Energy Education Program for Schools	766	2,563,019	\$ 1,365,938	0.00%	\$ -	\$ 676,815	85.5608674%	E2 * F2	\$ 579,089	\$ -
3	Energy Efficient Lighting	4,227	25,642,842	\$ 25,551,801	11.75%	\$ 8,752,062	\$ 10,726,031	85.5608674%	E3 * F3	\$ 9,177,288	\$ 4,175,557
4	Residential Service - Smart Saver	1,805	7,228,648	\$ 6,287,855	11.75%	\$ 7,168,833	\$ 7,065,295	85.5608674%	E4 * F4	\$ 6,045,127	\$ 342,294
5	Multi-Family	1,744	13,291,652	\$ 8,186,531	11.75%	\$ 678,773	\$ 3,088,515	85.5608674%	E5 * F5	\$ 2,642,560	\$ 619,236
6	Multi-Family Pipe/Wrap EMV Adjustment	-	-	\$ -	-	\$ (103,989)	\$ (103,989)	100.0000000%	E6 * F6	\$ (103,989)	\$ -
7	Neighborhood Energy Saver	347	2,278,804	\$ 1,226,687	0.00%	\$ -	\$ 1,845,739	85.5608674%	E7 * F7	\$ 1,579,230	\$ -
8	Residential Energy Assessments	935	7,751,895	\$ 5,361,656	11.75%	\$ 412,389	\$ 2,264,353	85.5608674%	E8 * F8	\$ 1,937,400	\$ 257,791
9	Residential New Construction	5,440	14,263,235	\$ 22,728,212	11.75%	\$ 1,120,746	\$ 14,310,695	85.5608674%	E9 * F9	\$ 12,244,355	\$ 587,678
10	Save Energy and Water Kit	5,058	15,252,311	\$ 10,187,632	11.75%	\$ 1,100,076	\$ 1,925,355	85.5608674%	E10 * F10	\$ 1,647,351	\$ 945,613
11	Residential Home Advantage	-	-	\$ -	11.75%	\$ -	\$ -	85.5608674%	E11 * F11	\$ -	\$ 176,476
12	Total for Residential Conservation Programs	20,322	88,272,404	\$ 80,896,092		\$ 5,078,426	\$ 41,798,809			\$ 35,748,408	\$ 7,224,399
13	My Home Energy Report	20,776	122,685,145	\$ 7,157,767	11.75%	\$ (62,290)	\$ 7,625,601	85.5608674%	E13*F13	\$ 6,524,531	\$ (53,295)
14	Total Residential Conservation and Behavioral Programs	41,098	210,957,549	\$ 88,053,859		\$ 5,016,136	\$ 49,424,411			\$ 42,272,939	\$ 7,171,104
NC Residential Peak Demand Allocation Factor											
15	EnergyWise	29,483	-	\$ 55,956,965	11.75%	\$ 5,909,420	\$ 11,573,447	86.5304240%	(2)	\$ 6,231,840	\$ 5,670,238
16	Total Residential	70,580	210,957,549	\$ 144,010,825		\$ 10,925,557	\$ 60,997,858		48.5812530%	\$ 48,504,779	\$ 12,841,842
Non-Residential Programs											
EE Programs											
17	Business Energy Report	-	-	\$ -	-	\$ -	\$ -	85.5608674%	E17 * F17	\$ -	\$ -
18	Energy Efficient Lighting	1,752	6,759,940	\$ 8,143,582	11.75%	\$ 831,917	\$ 1,899,351	85.5608674%	E18 * F18	\$ 1,621,679	\$ 1,385,841
19	Non-Residential Smart Saver Prescriptive	14,782	85,112,310	\$ 65,243,166	11.75%	\$ 6,312,952	\$ 17,828,865	85.5608674%	E19 * F19	\$ 15,254,532	\$ 8,950,905
20	Non-Residential Smart Saver Custom	1,883	11,901,442	\$ 8,808,940	11.75%	\$ 788,986	\$ 2,963,150	85.5608674%	E20 * F20	\$ 2,535,296	\$ 255,925
21	Non-Res. SmartSaver Performance	129	1,519,117	\$ 808,686	11.75%	\$ 73,337	\$ 272,897	85.5608674%	E21 * F21	\$ 233,493	\$ 30,334
22	Small Business Energy Saver	6,667	40,298,466	\$ 22,295,462	11.75%	\$ 1,578,877	\$ 10,437,089	85.5608674%	E22 * F22	\$ 8,930,064	\$ 2,644,583
23	Total for Non-Residential Conservation Programs	25,213	145,591,275	\$ 105,379,835		\$ 9,584,070	\$ 33,397,353			\$ 28,575,064	\$ 13,267,589
24	EnergyWise for Business	2,661	38,158	\$ (557,432)	11.75%	\$ (313,192)	\$ 1,794,838	86.5304240%	E24 * F24	\$ 3,641,467	\$ (271,006)
25	Commercial, Industrial, & Governmental Demand Response	1,629	-	\$ 2,073,843	11.75%	\$ 82,240	\$ 1,456,169	86.5304240%	E25 * F25	\$ 2,954,357	\$ 260,829
26	Total for Non-Residential DSM Programs	4,290	38,158	\$ 1,516,411		\$ (230,952)	\$ 3,251,007	86.5304240%	(2)	\$ 6,595,824	\$ (10,177)
27	Total Non-Residential	29,503	145,629,433	\$ 106,896,246		\$ 9,353,118	\$ 36,648,360		51.4187470%	\$ 35,170,888	\$ 13,257,412
28	Total All Programs	100,083	356,586,982	\$ 250,907,071		\$ 20,278,675	\$ 97,846,218			\$ 83,675,646	\$ 26,099,254
(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages (2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak (3) Multi-Family Pipe/Wrap EMV Adjustment includes (\$196,164) applied to line 5 as part of EMV application to the 2018 vintage year, of which (\$43,806) is Lost Revenue and (\$152,357) is Incentive. The remaining (\$103,989) is reflected in line 6 for a total of (\$300,153).											
24	DSDR	275,885	44,989,144	\$ -		\$ -	\$ 12,886,517			\$ -	\$ -
25	Total with DSDR	375,968	401,576,126	\$ 250,907,071		\$ 20,278,675	\$ 110,532,734			\$ 83,675,646	\$ 26,099,254

Duke Energy Progress
Supplemental Exams Exhibit 1, page 6 of 8
Vintage 2018 True Up - January 1, 2018 to December 31, 2018
Docket Number 6-2, July 2006
Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	I	J	K									
			=A*B	=B+C			=F*(E/F)	=I-B												
	NC Incentive	Income Tax Rate	Income Taxes	Net-of-Tax PPI - Total NPV	Discount Rate	PPI Amortization Period	Vintage Year 2018 - Year 1 PPI	Income Tax Gross-Up Factor	Adjusted PPI	1 Prior Period PPI	Vintage 2009 PPI	Vintage 2010 PPI	Vintage 2011 PPI	Vintage 2012 PPI	Vintage 2013 PPI	Vintage 2014 PPI	Vintage 2015 PPI	Vintage 2016 PPI	Vintage 2017 PPI	PPI Values for Test Period
Residential Programs																				
EE Programs																				
1 Appliance Recycling Program	\$ -	23.50%	\$ -	\$ -	6.72%	10	\$ -	76.50%	\$ -	\$ 139,754	\$ -	\$ 28,547	\$ 20,592	\$ 38,647	\$ 17,038	\$ 7,505	\$ 4,492	\$ 3,011	\$ (79)	\$ 119,754
2 Energy Education Program for Schools	\$ -	23.50%	\$ -	\$ -	6.72%	N/A	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Energy Efficient Lighting	\$ 1,688,045	23.50%	\$ (396,963)	\$ 1,291,082	6.72%	5	\$ 312,755	76.50%	\$ 408,849	\$ 3,766,708	\$ -	\$ 546,425	\$ 809,670	\$ 621,854	\$ 636,857	\$ 397,825	\$ 332,048	\$ 448,566	\$ 473,444	\$ 4,175,557
4 Residential Service - Smart Sewer	\$ (88,588)	23.50%	\$ 20,821	\$ (67,767)	6.72%	10	\$ (9,525)	76.50%	\$ (12,451)	\$ 354,745	\$ 10,405	\$ 75,357	\$ 116,481	\$ 108,364	\$ 0	\$ 14,647	\$ 24,314	\$ 13,823	\$ (9,166)	\$ 342,794
5 Multi-Family (with Pipe Wrap EMV Adjustment)	\$ 476,775	23.50%	\$ (112,059)	\$ 364,715	6.72%	5	\$ 88,288	76.50%	\$ 115,415	\$ 509,822	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 193,329	\$ 124,282	\$ 196,211	\$ 619,236
6 Neighborhood Energy Saver	\$ -	23.50%	\$ -	\$ -	6.72%	N/A	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7 Residential Energy Assessments	\$ 352,843	23.50%	\$ (82,931)	\$ 269,912	6.72%	5	\$ 65,839	76.50%	\$ 85,414	\$ 172,377	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,543	\$ 88,834
8 Residential New Construction	\$ 958,920	23.50%	\$ (225,381)	\$ 733,539	6.72%	10	\$ 103,098	76.50%	\$ 134,775	\$ 452,801	\$ -	\$ -	\$ -	\$ -	\$ 47,653	\$ 54,738	\$ 72,258	\$ 189,487	\$ 138,767	\$ 587,678
9 Save Energy and Water Kit	\$ 941,235	23.50%	\$ (221,248)	\$ 720,011	6.72%	5	\$ 174,296	76.50%	\$ 227,848	\$ 717,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,973	\$ 396,792	\$ 945,413
10 Residential Home Advantage	\$ -	23.50%	\$ -	\$ -	6.72%	10	\$ -	76.50%	\$ -	\$ 176,478	\$ 8,038	\$ 27,550	\$ 79,940	\$ 60,450	\$ 517	\$ -	\$ -	\$ -	\$ -	\$ 176,478
11 Total for Residential Conservation Programs	\$ 4,810,130		\$ (1,017,797)	\$ 3,792,333			\$ 734,251		\$ 959,851	\$ 6,364,549	\$ 18,424	\$ 677,879	\$ 526,684	\$ 829,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ 1,193,704	\$ 1,274,809	\$ 7,234,899
12 My Home Energy Report	\$ (53,295)	23.50%	\$ 12,526	\$ (40,769)	6.72%	1	\$ (40,769)	76.50%	\$ (53,295)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (53,295)
13 Total Residential Conservation and Behavioral Programs	\$ 4,756,835		\$ (1,005,271)	\$ 3,751,564			\$ 693,482		\$ 906,555	\$ 6,364,549	\$ 18,424	\$ 677,879	\$ 526,684	\$ 829,814	\$ 702,066	\$ 474,715	\$ 626,461	\$ 1,193,704	\$ 1,274,809	\$ 7,171,104
14 EnergyWise	\$ 5,113,446	23.50%	\$ (1,201,845)	\$ 3,911,601	6.72%	10	\$ 549,772	76.50%	\$ 718,690	\$ 4,952,048	\$ 135,141	\$ 1,043,048	\$ 781,456	\$ 347,959	\$ 303,384	\$ 349,527	\$ 265,373	\$ 911,314	\$ 796,811	\$ 5,670,738
15 Total Residential	\$ 9,890,281		\$ (2,207,056)	\$ 7,683,225			\$ 1,243,254		\$ 1,625,245	\$ 11,216,597	\$ 153,564	\$ 1,120,927	\$ 1,108,140	\$ 1,177,773	\$ 1,003,450	\$ 844,237	\$ 893,833	\$ 2,045,018	\$ 2,071,654	\$ 12,841,842
Non-Residential Programs																				
EE Programs																				
16 Business Energy Report	\$ -	23.50%	\$ -	\$ -	6.72%	1	\$ -	76.50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17 Energy Efficient Lighting	\$ 711,796	23.50%	\$ (167,298)	\$ 544,498	6.72%	5	\$ 131,809	76.50%	\$ 172,307	\$ 1,213,534	\$ -	\$ 134,853	\$ 745,72	\$ 153,107	\$ 171,971	\$ 116,186	\$ 152,410	\$ 218,730	\$ 191,645	\$ 1,385,841
18 Non-Residential Smart Sewer Prescriptive	\$ 5,401,417	23.50%	\$ (1,269,528)	\$ 4,131,888	6.72%	8	\$ 1,566,453	76.50%	\$ 2,047,748	\$ 6,903,157	\$ 169,910	\$ 452,376	\$ 648,907	\$ 722,646	\$ 678,479	\$ 418,885	\$ 369,180	\$ 1,281,869	\$ 2,139,886	\$ 8,950,905
19 Non-Residential Smart Sewer Custom	\$ 675,063	23.50%	\$ (156,664)	\$ 518,399	6.72%	3	\$ 195,774	76.50%	\$ 255,925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 255,925
20 Non-Res SmartSaver Performance	\$ 61,017	23.50%	\$ (14,346)	\$ 46,671	6.72%	3	\$ 13,901	76.50%	\$ 23,140	\$ 7,184	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,184
21 Small Business Energy Saver	\$ 1,350,901	23.50%	\$ (317,111)	\$ 1,033,790	6.72%	3	\$ 891,772	76.50%	\$ 1,174,144	\$ 2,132,439	\$ -	\$ -	\$ -	\$ -	\$ 80,709	\$ 217,123	\$ 241,051	\$ 300,609	\$ 692,747	\$ 2,644,283
22 Total for Non-Residential Conservation Programs	\$ 8,200,113		\$ (1,927,347)	\$ 6,272,766			\$ 2,301,509		\$ 3,011,255	\$ 10,196,324	\$ 169,910	\$ 587,129	\$ 724,479	\$ 875,773	\$ 931,159	\$ 772,394	\$ 762,461	\$ 2,401,209	\$ 3,031,512	\$ 13,267,589
23 EnergyWise for Business	\$ (271,006)	23.50%	\$ 63,696	\$ (207,310)	6.72%	1	\$ (207,310)	76.50%	\$ (271,006)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (271,006)
24 Commercial, Industrial, & Governmental Demand Response	\$ 71,163	23.50%	\$ (16,726)	\$ 54,437	6.72%	3	\$ 20,888	76.50%	\$ 26,879	\$ 233,850	\$ -	\$ 65,722	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,414	\$ -	\$ 82,891	\$ 280,829
25 Total for Non-Residential DSM Programs	\$ (199,844)		\$ 46,971	\$ (152,873)			\$ (186,422)		\$ (144,028)	\$ 233,850	\$ -	\$ 65,722	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,414	\$ -	\$ 82,891	\$ (10,177)
26 Total Non-Residential	\$ 8,000,370		\$ (1,880,377)	\$ 6,119,993			\$ 2,115,086		\$ 2,767,227	\$ 10,480,174	\$ 169,910	\$ 652,851	\$ 742,134	\$ 904,088	\$ 940,877	\$ 797,533	\$ 797,075	\$ 2,401,209	\$ 3,114,601	\$ 13,257,411
27 Total All Programs	\$ 17,890,651		\$ (4,087,433)	\$ 13,803,218			\$ 3,360,090		\$ 4,392,482	\$ 21,706,772	\$ 323,474	\$ 2,178,778	\$ 2,050,273	\$ 2,083,861	\$ 1,844,923	\$ 1,641,770	\$ 1,658,908	\$ 4,446,227	\$ 5,186,057	\$ 26,099,254

(1) Energy Efficient Benchmarking impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages.
(2) Total System DSM programs allocated to Residential and Non-Residential based on contribution to retail system peak.

Duke Energy Progress
 Supplemental Evans Exhibit 1, page 7 of 8
 Vintage 2020 Estimate - January 1, 2020 to December 31, 2020
 Docket No. E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	I	J	K	L	M	
				=(A-B)/C	=(E+D)				=(I from page 2)	=(J from page 2)	=(K from page 2)	=(L from page 2)	=(M from page 2)	
	System kW Reduction - Summer Peak	System Energy Reduction (kWh)	System NPV of Avoided Costs	Total Cost	Shared Savings %	Incentive	Unadjusted Rev Requirement *	NC Retail kWh Sales Allocation Factor	NC Allocation Factor (J)	NC Residential Unadjusted Revenue Requirement**	NC Residential Adjusted Revenue Requirement	Original NC Residential Adjusted Revenue Requirement	Difference	
Residential Programs														
EE Programs														
1 Appliances and Devices	7,822	23,787,507	13,327,506	987,762	11.75%	\$ 1,448,520	\$ 2,437,682	85.5608674%		E1 * F1 \$ 2,085,702	\$ 299,664	\$ 299,664	\$ -	
2 Appliance Recycling Program	-	-	-	-	11.75%	\$ -	\$ -	85.5608674%		E2 * F2 \$ -	\$ 91,207	\$ 91,207	\$ -	
3 Energy Education Program for Schools	462	3,872,957	1,213,998	969,044	0.00%	\$ -	\$ 969,044	85.5608674%		E3 * F3 \$ 829,122	\$ -	\$ -	\$ -	
4 Energy Efficient Lighting	1,480	8,977,856	7,302,951	4,558,139	11.75%	\$ 322,515	\$ 4,880,655	85.5608674%		E4 * F4 \$ 4,175,890	\$ 3,890,635	\$ 3,890,635	\$ 12,070	
5 Residential Smart Saver	1,571	5,634,689	5,047,520	3,400,576	11.75%	\$ 281,050	\$ 3,597,668	85.5608674%		E5 * F5 \$ 3,078,296	\$ 273,823	\$ 273,823	\$ 1,396	
6 Multi-Family	1,847	14,538,633	7,175,347	2,923,891	11.75%	\$ 499,546	\$ 3,423,437	85.5608674%		E6 * F6 \$ 2,929,122	\$ 444,238	\$ 444,238	\$ 3,253	
7 Neighborhood Energy Saver	348	2,279,725	993,642	2,042,281	0.00%	\$ -	\$ 2,042,281	85.5608674%		E7 * F7 \$ 1,747,394	\$ -	\$ -	\$ -	
8 Residential Energy Assessments	820	6,846,573	3,860,896	1,932,255	11.75%	\$ 226,615	\$ 2,158,870	85.5608674%		E8 * F8 \$ 1,847,148	\$ 317,196	\$ 317,196	\$ 2,218	
9 Residential New Construction	4,606	15,992,111	18,677,081	13,018,377	11.75%	\$ 664,898	\$ 33,683,275	85.5608674%		E9 * F9 \$ 13,707,529	\$ 833,230	\$ 834,807	\$ 4,912	
10 Save Energy and Water Kit	-	-	-	-	11.75%	\$ -	\$ -	85.5608674%		E10 * F10 \$ -	\$ 1,343,983	\$ 1,340,230	\$ 3,752	
11 Residential Home Advantage	-	-	-	-	11.75%	\$ -	\$ -	85.5608674%		E11 * F11 \$ -	\$ 140,907	\$ 140,907	\$ -	
12 Total for Residential Conservation Programs	19,456	81,910,160	57,539,341	29,836,325		\$ 3,356,587	\$ 33,192,912			\$ 28,400,143	\$ 8,021,853	\$ 7,994,251	\$ 27,601	
13 My Home Energy Report (1)	19,586	118,045,885	6,434,470	6,866,858	11.75%	\$ 753,150	\$ 6,813,703	85.5608674%		E12 * F12 \$ 5,879,863	\$ 185,480	\$ 185,480	\$ -	
14 Total Residential Conservation and Behavioral	39,042	197,956,045	\$ 63,973,811	\$ 36,703,184		\$ 3,301,432	\$ 40,006,615			\$ 34,230,006	\$ 7,976,371	\$ 7,948,720	\$ 27,601	
NC Residential Peak Demand Allocation Factor														
15 EnergyWise * Home	27,629	-	42,935,886	8,148,740	11.75%	\$ 4,085,140	\$ 12,233,879	86.5304240%	48.58%	(E 13+E23)*F13*G13	\$ 9,253,543	\$ 5,526,161	\$ 5,547,334	\$ 12,151
16 Total Residential	66,671	197,956,045	\$ 106,869,697	\$ 44,853,923		\$ 7,188,571	\$ 52,240,495			\$ 43,483,547	\$ 13,502,534	\$ 13,496,084	\$ 6,450	
Non-Residential Programs														
EE Programs														
17 Energy Efficient Lighting	611	2,337,624	2,211,608	552,455	11.75%	\$ 394,950	\$ 747,406	85.5608674%		E15 * F15 \$ 639,487	\$ 1,408,237	\$ 1,406,771	\$ 1,466	
18 Non-Residential Smart Saver (Custom)	2,486	21,077,808	10,348,052	4,302,434	11.75%	\$ 718,360	\$ 6,012,794	85.5608674%		E16 * F16 \$ 4,288,990	\$ 421,904	\$ 426,392	\$ 5,511	
19 Non-Residential Smart Saver (Pre-scripted)	10,441	63,760,630	18,000,135	11,355,157	11.75%	\$ 3,130,759	\$ 14,486,116	85.5608674%		E17 * F17 \$ 12,394,447	\$ 6,479,308	\$ 6,438,521	\$ 40,827	
20 Non-Residential Smart Saver Performance Incentive	858	7,520,191	3,692,143	991,702	11.75%	\$ 317,102	\$ 3,309,004	85.5608674%		E18 * F18 \$ 1,139,995	\$ 207,167	\$ 206,613	\$ 529	
21 Small Business Energy Saver	6,642	38,403,907	19,156,040	8,304,027	11.75%	\$ 1,275,112	\$ 5,579,139	85.5608674%		E19 * F19 \$ 5,195,994	\$ 1,962,637	\$ 1,948,624	\$ 13,958	
22 Total for Non-Residential Conservation Program	20,961	133,107,341	\$ 73,407,958	\$ 25,506,975		\$ 5,628,483	\$ 31,134,458			\$ 26,638,933	\$ 10,679,322	\$ 10,616,991	\$ 62,331	
NC Non-Residential Peak Demand Allocation Factor														
23 EnergyWise * for Business	8,232	54,636	826,038	3,315,403	11.75%	\$ (282,500)	\$ 3,022,903			\$ 3,027,645	\$ (269,913)	\$ (269,912)	\$ -	
24 Commercial Industrial Governmental Demand 1	2,357	-	11,335,339	6,148,693	11.75%	\$ 607,079	\$ 6,755,771			\$ 6,766,320	\$ 560,154	\$ 591,203	\$ 13,048	
25 Total for Non-Residential DSM Programs	15,609	54,636	\$ 12,141,357	\$ 9,464,095		\$ 314,578	\$ 9,778,674	86.5304240%	51.42%	(E 13+E23)*F23*G23	\$ 9,794,014	\$ 290,242	\$ 321,291	\$ 13,049
26 Total Non Residential	36,570	133,161,976	\$ 85,549,315	\$ 34,970,071		\$ 5,943,061	\$ 40,913,132			\$ 36,432,927	\$ 10,969,564	\$ 10,918,282	\$ 14,283	
27 Total All Programs	105,240	331,156,021	\$ 192,419,012	\$ 79,823,994		\$ 13,331,633	\$ 93,153,627			\$ 79,936,475	\$ 24,472,099	\$ 24,434,366	\$ 37,732	
DSDR														
1 DSDR	293,836	46,476,232	\$ -	\$ 18,774,903	N/A	\$ -	\$ 18,774,903			\$ -	\$ -	\$ -	\$ -	
Total All Programs with DSDR	397,076	377,634,253	\$ 192,419,012	\$ 98,598,897		\$ 13,331,633	\$ 111,928,530			\$ 79,936,475	\$ 24,472,099	\$ 24,434,366	\$ 37,732	

(1) My Home Energy Report impacts reflect cumulative capability as of end of vintage year, including impacts for participants from prior vintages.
 (2) Total System DSM programs, allocated to Residential and Non-Residential based on contribution to retail system peak

Duke Energy Progress
 Supplemental Exams Exhibit L, page 8 of 8
 Vintage 2020 Estimate - January 1, 2020 to December 31, 2020
 Docket No. E-2, Sub 1206
 Load Impacts and Estimated Revenue Requirements by Program

	A	B	C	D	E	F	G	H	I	J											K		
			-A*B	-A+C			-PMT(E,F,D)	-I-B													-J4		
	NC Incentive	Income Tax Rate	Income Taxes	Net-of-Tax PPI - Total NPV	Discount Rate	PPI Amortization Period	Vintage Year 2020 - Year 1 PPI	Income Tax Gross-Up Factor	Adjusted PPI	I Prior Period PPI	Vintage 2009 PPI	Vintage 2010 PPI	Vintage 2011 PPI	Vintage 2012 PPI	Vintage 2013 PPI	Vintage 2014 PPI	Vintage 2015 PPI	Vintage 2016 PPI	Vintage 2017 PPI	Vintage 2018 PPI	Vintage 2019 PPI	PPI Values for Test Period	
Residential Programs																							
EE Programs																							
1	Appliances and Devices	\$ 1,240,564	23.17%	\$ (287,438)	\$ 953,134	6.64%	5	\$ 230,234	76.83%	\$ 299,664	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 299,664	
2	Appliance Recycling Program	\$ -	23.17%	\$ -	\$ -	6.64%	10	\$ -	76.83%	\$ -	\$ 91,207	\$ -	\$ -	\$ 20,592	\$ 38,647	\$ 17,038	\$ 7,505	\$ 4,402	\$ 1,011	\$ (79)	\$ -	\$ 91,207	
3	Energy Education Program for Schools	\$ -	23.17%	\$ -	\$ -	6.64%	N/A	\$ -	76.83%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
4	Energy Efficient Lighting	\$ 275,947	23.17%	\$ (63,935)	\$ 212,012	6.64%	5	\$ 51,213	76.83%	\$ 66,656	\$ 3,826,959	\$ -	\$ -	\$ 309,670	\$ 621,854	\$ 636,857	\$ 397,825	\$ 332,048	\$ 448,586	\$ 473,444	\$ 408,849	\$ 197,827	\$ 3,893,615
5	Home Energy Improvement	\$ 165,212	23.17%	\$ (38,278)	\$ 126,934	6.64%	10	\$ 17,774	76.83%	\$ 23,134	\$ 248,687	\$ -	\$ -	\$ 116,481	\$ 108,864	\$ -	\$ 14,647	\$ 24,334	\$ 13,823	\$ (9,166)	\$ (12,451)	\$ (7,845)	\$ 271,821
6	Multi-Family	\$ 427,416	23.17%	\$ (99,029)	\$ 328,387	6.64%	5	\$ 79,323	76.83%	\$ 103,244	\$ 740,994	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 740,994
7	Neighborhood Energy Saver	\$ -	23.17%	\$ -	\$ -	6.64%	N/A	\$ -	76.83%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	Residential Energy Assessments	\$ 193,894	23.17%	\$ (44,934)	\$ 148,970	6.64%	5	\$ 35,984	76.83%	\$ 46,836	\$ 270,360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 83,543	\$ 88,834	\$ 85,414	\$ 12,569	\$ 317,196
9	Residential New Construction	\$ 568,892	23.17%	\$ (131,808)	\$ 437,084	6.64%	10	\$ 61,204	76.83%	\$ 79,661	\$ 739,559	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,487	\$ 138,767	\$ 134,775	\$ 151,881	\$ 819,220
10	Save Energy and Water Kit	\$ -	23.17%	\$ -	\$ -	6.64%	5	\$ -	76.83%	\$ -	\$ 1,343,983	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,973	\$ 396,792	\$ 227,848	\$ 398,369	\$ 1,343,983
11	Residential Home Advantage	\$ -	23.17%	\$ -	\$ -	6.64%	10	\$ -	76.83%	\$ -	\$ 140,907	\$ -	\$ -	\$ 79,940	\$ 60,450	\$ 517	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 140,907
12	Total for Residential Conservation Prog	2,871,925		(665,405)	2,206,520			475,733		619,196	7,402,655			526,684	829,814	702,066	474,715	626,461	1,133,704	1,274,803	959,851	874,559	8,021,851
13	My Home Energy Report	\$ (45,480)	23.17%	\$ 10,537	\$ (34,943)	6.64%	1	\$ (34,943)	76.83%	\$ (45,480)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (45,480)
14	Total Residential Conservation and Behi	2,826,445		(654,867)	2,171,577			440,790		573,716	7,402,655			526,684	829,814	702,066	474,715	626,461	1,133,704	1,274,803	959,851	874,559	7,976,371
15	EnergyWise * Home	\$ 3,534,889	23.17%	\$ (819,009)	\$ 2,715,880	6.64%	10	\$ 380,299	76.83%	\$ 484,983	\$ 5,031,180	\$ -	\$ -	\$ 781,456	\$ 347,959	\$ 301,384	\$ 309,522	\$ 265,373	\$ 911,314	\$ 718,108	\$ 718,690	\$ 617,375	\$ 5,526,163
16	Total Residential	6,361,333		(1,473,876)	4,887,457			811,089		1,068,698	12,433,836			1,308,140	1,177,773	1,003,450	844,237	891,833	2,043,018	1,992,811	1,678,541	1,491,933	13,502,534
Non-Residential Programs																							
EE Programs																							
17	Energy Efficient Lighting	\$ 166,801	23.17%	\$ (38,647)	\$ 128,155	6.64%	5	\$ 30,956	76.83%	\$ 40,292	\$ 1,367,945	\$ -	\$ -	\$ 74,572	\$ 153,107	\$ 171,971	\$ 116,186	\$ 152,430	\$ 218,730	\$ 191,685	\$ 172,307	\$ 116,957	\$ 1,408,237
18	Non-Residential Smart Saver (Custom)	\$ 607,790	23.17%	\$ (140,821)	\$ 466,970	6.64%	3	\$ 176,736	76.83%	\$ 230,084	\$ 391,819	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 255,925	\$ 135,894	\$ 621,904
19	Non-Residential Smart Saver (Prescripti	\$ 2,678,790	23.17%	\$ (620,637)	\$ 2,058,068	6.64%	3	\$ 779,100	76.83%	\$ 1,014,048	\$ 5,465,340	\$ -	\$ -	\$ 649,907	\$ 722,666	\$ 678,479	\$ 438,885	\$ 369,180	\$ -	\$ -	\$ 2,047,748	\$ 558,476	\$ 6,479,388
20	Non-Residential Smart Saver Performan	\$ 271,486	23.17%	\$ (62,901)	\$ 208,585	6.64%	3	\$ 78,962	76.83%	\$ 102,774	\$ 104,388	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,140	\$ 81,248	\$ 207,162
21	Small Business Energy Saver	\$ 1,090,996	23.17%	\$ (252,776)	\$ 838,220	6.64%	3	\$ 317,316	76.83%	\$ 413,007	\$ 1,549,625	\$ -	\$ -	\$ -	\$ -	\$ 80,709	\$ 217,823	\$ 241,051	\$ -	\$ -	\$ 512,144	\$ 498,399	\$ 3,962,632
22	Total for Non-Residential Conservation I	4,815,779		(1,115,782)	3,699,997			1,383,109		1,800,204	8,879,118			724,479	875,773	931,159	772,394	762,661	218,730	191,685	3,011,265	1,390,973	10,679,322
23	EnergyWise * for Business	\$ (253,102)	23.17%	\$ 58,642	\$ (194,460)	6.64%	1	\$ (207,375)	76.83%	\$ (269,912)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (269,912)
24	Commercial, Industrial, & Government	\$ 525,308	23.17%	\$ (121,718)	\$ 403,590	6.64%	3	\$ 152,785	76.83%	\$ 198,860	\$ 361,294	\$ -	\$ -	\$ 17,655	\$ 28,315	\$ 9,714	\$ 25,139	\$ 4,414	\$ -	\$ -	\$ 26,979	\$ 249,078	\$ 560,154
25	Total for Non-Residential DSM Program	272,206		(63,008)	209,138			(54,590)		(73,052)	361,294			17,655	28,315	9,714	25,139	4,414			26,979	249,078	290,242
26	Total Non-Residential	5,087,985		(1,178,850)	3,909,134			1,328,520		1,729,152	9,240,412			742,134	904,088	940,873	797,533	767,075	218,730	191,685	3,038,243	1,640,051	10,969,564
27	Total All Programs	11,449,318		(2,652,727)	8,796,591			2,149,608		2,797,850	21,674,248			2,050,273	2,081,861	1,944,323	1,641,770	1,658,908	2,261,748	2,184,596	4,716,784	3,131,985	24,472,099

SACE
Docket No. E-2, Sub 1206
DSM/EE Rider
SACE Data Request No. 1
Item No. 1-3
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DUKE ENERGY PROGRESS, LLC

Request:

Please provide a calculation of DSM/EE portfolio savings (1) as a percentage of total annual sales; and (2) as a percentage of annual sales to non-opt-out customers, with and without adjustment for line loss:

- a. For the year 2017 (as a percentage of 2016 retail sales);
- b. For the year 2018 (as a percentage of 2017 retail sales); and
- c. Forecasted for the year 2020 (as a result of forecasted 2019 sales).

Response:

Please see attachment "SACE DR1-3.xlsx".



SACE DR1-3.xlsx

Duke Energy Progress

SACE DR 1-3

	At Generator	At Meter		
2017 Incremental Energy Savings	378,262,008	359,906,764	kWh	Evans Exhibit 1 page 3 Line 26
2017 Opt Out Electricity Sales - NC	12,046,836,667	11,462,261,339	kWh	Miller Exh 6, Line 5
2017 Opt Out Electricity Sales - SC	2,863,405,551	2,724,458,184	kWh	Miller Exh 6, Line 5
2016 System Retail Billed Electricity Sales	45,819,130	43,595,747	MWh	2016 Revenue Support
2018 Incremental Energy Savings	356,586,982	339,283,523	kWh	Evans Exhibit 1 page 5 Line 28
2018 Opt Out Electricity Sales - NC	12,347,900,784	11,748,716,255	kWh	Miller Exh 6, Line 5
2018 Opt Out Electricity Sales - SC	2,957,330,614	2,813,825,513	kWh	Miller Exh 6, Line 5
2017 System Retail Billed Electricity Sales	45,248,506	43,052,813	MWh	2017 Revenue Support
2020 Incremental Energy Savings	331,158,021	315,088,507	kWh	Evans Exhibit 1 page 7 Line 27
2020 Opt Out Electricity Sales - NC	12,347,900,784	11,748,716,255	kWh	Miller Exh 6, Line 15
2020 Opt Out Electricity Sales - SC	2,957,330,614	2,813,825,513	kWh	Miller Exh 6, Line 15
2019 System Retail Electricity Sales	46,297,688	44,051,083	MWh	2018 Spring forecast, used for collections in 2019

3. Please provide a calculation of DSM/EE portfolio savings (1) as a percentage of total annual sales; and (2) as a percentage of annual sales to non-opt-out customers, with and without adjustment for line loss:

a. For the year 2017 (as a percentage of 2016 retail sales);

2017 Incremental Energy Savings	378,262	MWh
2016 System Retail Electricity Sales	45,819,130	MWh
Savings as % of 2016 Sales	0.83%	
2017 Incremental Energy Savings	378,262	MWh
2016 System Retail Electricity Sales, net of 2017 Opt Out	30,908,887	MWh
Savings as % of 2016 Sales, net of 2017 Opt Out	1.22%	

3. Please provide a calculation of DSM/EE portfolio savings (1) as a percentage of total annual sales; and (2) as a percentage of annual sales to non-opt-out customers, with and without adjustment for line loss:

b. For the year 2018 (as a percentage of 2017 retail sales);

2018 Incremental Energy Savings	356,587	MWh
2017 System Retail Electricity Sales	45,248,506	MWh
Savings as % of 2017 Sales	0.79%	
2018 Incremental Energy Savings	356,587	MWh
2017 System Retail Electricity Sales, net of 2018 Opt Out	29,943,275	MWh
Savings as % of 2017 Sales, net of 2018 Opt Out	1.19%	

3. Please provide a calculation of DSM/EE portfolio savings (1) as a percentage of total annual sales; and (2) as a percentage of annual sales to non-opt-out customers, with and without adjustment for line loss:

c. Forecasted for the year 2020 (as a result of forecasted 2019 sales).

2020 Incremental Energy Savings	331,158	MWh
2019 System Retail Electricity Sales	46,297,688	MWh
Savings as % of 2019 Sales	0.72%	

I/A

Forest Bradley-Wright
4532 Bancroft Dr. New Orleans, LA 70122
(504) 208-7597; forest@forestwright.com

FBW Exhibit 1

PROFESSIONAL EXPERIENCE

Energy Efficiency Director: Southern Alliance for Clean Energy, Knoxville, TN **April 2018 – Present**

- Regulatory filings, testimony, strategy, and stakeholder management on integrated resource planning, energy efficiency program design, cost recovery and related matters throughout the Southeast.

Senior Policy Director: Alliance for Affordable Energy, New Orleans, LA **February 2017 – April 2018**

- Regulatory filings, strategy, and stakeholder management on integrated resource planning and energy efficiency rulemaking, power plant proposals and related matters at the city and state level.

Consultant: Utility Regulation and Energy Policy **December 2014 – February 2017**

- Technical and strategic guidance on clean energy policy and utility regulation for Opower, Gulf States Renewable Energy Industries Association, the Alliance, and Mississippi PSC candidate Brent Bailey.

Candidate: Louisiana Public Service Commission **July - December 2014**

- Won the open primary and secured 49.15% of the vote in the general election against a highly favored, well-funded incumbent.
- Raised nearly \$500,000 in campaign contributions while publicly pledging not to accept money from monopoly companies regulated by the PSC.
- Campaign focused on ethical leadership, reducing bills, energy efficiency, the rights of customers to generate solar energy, and government transparency.

Utility Policy Director: Alliance for Affordable Energy, New Orleans, LA **October 2005 – June 2014**

- Directed successful policy efforts for energy efficiency, renewable energy, and integrated resource planning at the Louisiana PSC and New Orleans City Council, spurring every major Louisiana utility investment in clean energy over the past decade.
- Reviewed and filed intervenor comments, met with commissioners, utilities, and technical consultants, assembled and managed relationships with a broad coalition of stakeholders, worked with media, and served as the organization's public face.
- Launched and managed energy efficiency and solar workforce training programs, public education campaigns, and direct service projects to improve energy performance in over 100 homes following the city's rebuild post-Katrina.

Owner and Director: EcoPark LLC (d.b.a. The Building Block), New Orleans, LA **February 2008 – Present**

Created an innovative co-location business center to serve as a catalyst for moving green commerce and social entrepreneurship to the mainstream.

- Developed the business concept and plan, brought initial funding to the project, hired staff, established brand identity, and secured tenants.

Sustainable Development Team Facilitator: Shell International, New Orleans, LA **May 2001 – June 2004**

- Worked to facilitate a paradigm shift within corporate management's core business practices toward social and environmental issue management.
- Engaged a diverse team of professionals across the company to identify energy and resource inefficiencies and methods to reduce carbon emissions from venting and flaring in oil and natural gas exploration and production.
- Analyzed ways to incorporate sustainability accounting into each stage of new venture development for major drilling projects.

EDUCATION

Tulane University

- **Master of Arts in Latin American Studies, 2011**
Concentration in environmental law, business, and international development
- **Bachelor of Arts with Honors in Latin American Studies, 2001**

EXPERT WITNESS TESTIMONY

Forest Bradley-Wright, Direct Testimony on Behalf of Southern Alliance for Clean Energy and League of United Latin American Citizens. Docket Nos. 20190015-EG, 20190016-EG, 20190018-EG, 20190019-EG, 20190020-EG, 20190021-EG- Commission Review of Numeric Conservation Goals for Florida Power & Light, Gulf Power Company, Duke Energy Florida, Orlando Utilities Commission, Jacksonville Electric Authority, Tampa Electric Company. June 10th, 2019.

Forest Bradley-Wright, Direct Testimony on Behalf of Southern Alliance for Clean Energy and North Carolina Justice Center, Application of Duke Energy Carolinas, LLC for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. §62-133.9 and Commission Rule R8-69; Docket No. E-7, Sub 1192. May 20th, 2019.

Forest Bradley-Wright, Direct Testimony on Behalf of Southern Alliance for Clean Energy, Georgia Power Company's Application for the Certification, Decertification, and Amended Demand Side Management Plan, Docket No. 42311. April 25th, 2019.

OTHER REGULATORY FILINGS

Forest Bradley-Wright, Comments on Behalf of Southern Alliance for Clean Energy, Order Establishing Docket to Investigate the Development and Implementation of an Integrated Resource Planning Rule – MPSC Docket 2018-AD-64. February 15th, 2019

Forest Bradley-Wright and Daniel Brookshire, Comments on Behalf of North Carolina Sustainable Energy Association and Southern Alliance for Clean Energy, Duke Energy Progress, LLC's Proposed Non-Profit Low-Income Weatherization Pay for Performance Pilot, Docket No. E-2, Sub 1187. November 9th, 2018

Forest Bradley-Wright, Comments on Behalf of Southern Alliance for Clean Energy, Order Establishing Docket to Investigate the Development and Implementation of an Integrated Resource Planning Rule – MPSC Docket 2018-AD-64. August 1st, 2018

Forest Bradley-Wright and Logan Burke, Comments on Behalf of Alliance for Affordable Energy, Rulemaking to Study the Possible Development of Financial Incentives for the Promotion of Energy Efficiency by Jurisdictional Electric and Natural Gas Utilities, Louisiana Public Service Commission Docket R-31106. June 20th, 2017

Forest Bradley-Wright and Logan Burke, Comments on Behalf of Alliance for Affordable Energy, Rulemaking to Establish Integrated Resource Planning Components and Reporting Requirements for Entergy New Orleans, Docket No. UD-17-01. May 25th, 2017

Forest Bradley-Wright and Logan Burke, Comments on Behalf of Alliance for Affordable Energy, Rulemaking to Study the Possible Development of Financial Incentives for the Promotion of Energy Efficiency by Jurisdictional Electric and Natural Gas Utilities, Louisiana Public Service Commission Docket R-31106. March 7th, 2017

Forest Bradley-Wright and Jeff Cantin, Post Hearing Brief on Behalf of Gulf States Renewable Energy Industries Association, Petition for a Certificate of Convenience and Necessity for Alabama Power, Docket No. 32382. August 19th, 2015

PUBLICATIONS

Forest Bradley-Wright and Heather Pohnan, Energy Efficiency in the Southeast 2018 Annual Report, Southern Alliance for Clean Energy. December 12th, 2018

[Main Menu](#)

Table 1

[Next >>](#)**2017 Portfolio Summary**

Net Energy Savings		Costs			Cost-Effectiveness			Goal Achievement		
Demand MW	Energy MWh	Actual Expenditures	LCFC	Performance Incentives	TRC Net Benefits (NPV)	TRC Ratio	PAC Ratio	Commission Established Target % of Baseline	Actual Savings Achieved % of Baseline	% of Target Achieved (%)
104	264,992	\$ 57,141,646	\$ -	\$ 4,962,781	\$ 111,287,286	2.52	2.79	0.90%	1.49%	165%

Work Book is Incomplete
- Click Here For Details-

Main Menu

Table 2

<< Back

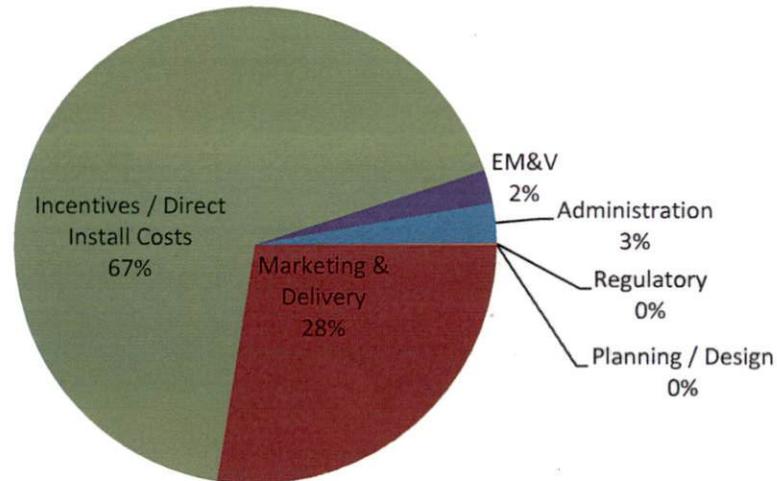
Next >>

EE Portfolio Expenditures by Program

Program Name	Target Sector	Program Type	2017		% of Budget
			Budget (\$)	Actual (\$)	
Bring Own T-stat Pilot	Residential	Demand Response	130,676	68,912	53%
Efficient Cooling Solutions	Residential	Measure/Technology Focus	2,608,580	2,209,519	85%
Energy Solutions for Manufactured Homes	Residential	Market Specific/Hard to Reach	1,066,973	1,013,729	95%
Energy Solutions for Multi-Family	Residential	Market Specific/Hard to Reach	1,087,309	964,280	89%
Home Energy Solutions	Residential	Whole Home	11,798,620	11,736,577	99%
Lighting & Appliances	Residential	Consumer Product Rebate	4,708,434	4,521,562	96%
Residential Benchmarking Program	Residential	Behavior/Education	557,798	468,626	84%
Residential Direct Load Control	Residential	Demand Response	3,044,555	2,064,063	68%
Small Business	Small Business	Market Specific/Hard to Reach	4,184,886	4,269,781	102%
C&I Solutions Program	Commercial & Industrial	Custom	23,644,196	21,195,549	90%
City Smart	Commercial & Industrial	Market Specific/Hard to Reach	3,664,805	3,638,872	99%
Commercial Midstream	Commercial & Industrial	Consumer Product Rebate	1,228,253	1,116,444	91%
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	1,018,569	765,606	75%
Agricultural Irrigation Load Control	Agriculture	Demand Response	3,092,606	2,837,698	92%
Energy Efficiency Arkansas Regulatory	Residential	Other	198,507	197,986	100%
	-	-	-	72,440	-
		Total	62,034,767	57,141,646	92%

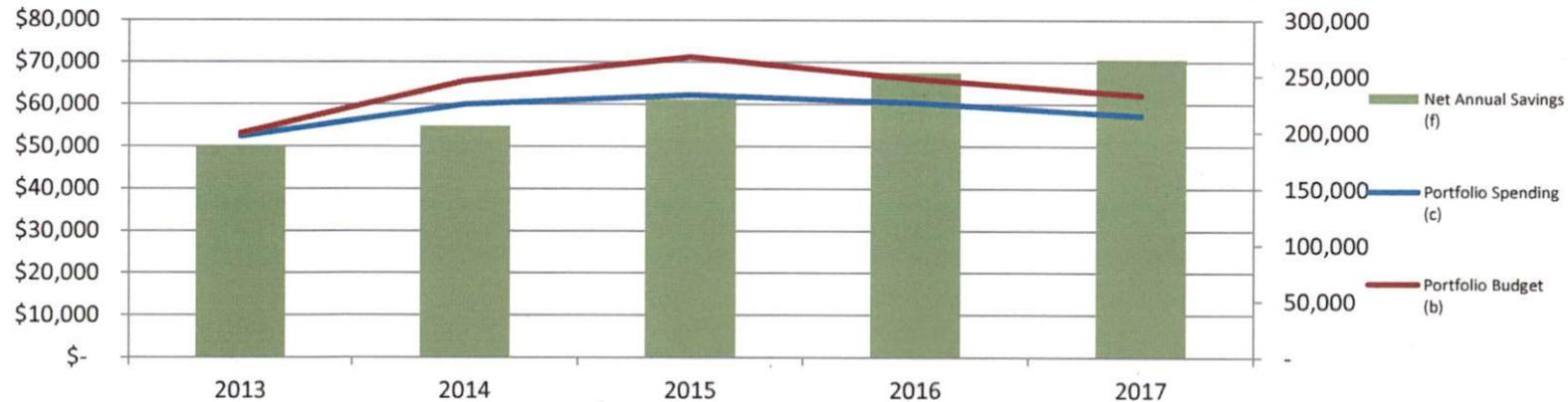
EE Portfolio Expenditure Summary by Cost Type

Cost Type	2017 Total Expenditures			
	% of Total	Budget (\$)	Actual (\$)	% of Total
Planning / Design	0%	170,174	9,672	0%
Marketing & Delivery	27%	16,806,585	15,701,465	27%
Incentives / Direct Install Costs	65%	40,172,674	38,517,076	67%
EM&V	3%	2,073,388	1,285,628	2%
Administration	5%	2,811,946	1,555,365	3%
Regulatory	0%	-	72,440	0%
	100%	62,034,767	57,141,646	100%



Company Statistics

Program Year	Revenue and Expenditures					Energy				
	Total Revenue (a) (\$000's)	Budget		Actual		Total Annual Energy Sales (d) (MWh)	Plan		Evaluated	
		Portfolio Budget (b) (\$000's)	% of Revenue (%=b/a)	Portfolio Spending (c) (\$000's)	% of Revenue (%=c/a)		Net Annual Savings (e) (MWh)	% of Energy Sales (%=e/d)	Net Annual Savings (f) (MWh)	% of Energy Sales (%=f/d)
2013	\$ 1,678,683	\$ 53,032	3.2%	\$ 52,285	3.1%	20,859,130	165,469	0.79%	188,468	0.90%
2014	\$ 1,642,896	\$ 65,454	4.0%	\$ 59,914	3.6%	21,001,325	197,564	0.94%	205,507	0.98%
2015	\$ 1,820,805	\$ 71,178	3.9%	\$ 62,190	3.4%	21,160,228	186,555	0.88%	229,268	1.08%
2016	\$ 1,733,733	\$ 65,964	3.8%	\$ 60,270	3.5%	20,639,386	194,165	0.94%	253,201	1.23%
2017	\$ 1,739,545	\$ 62,035	3.6%	\$ 57,142	3.3%	20,888,455	238,130	1.14%	264,992	1.27%

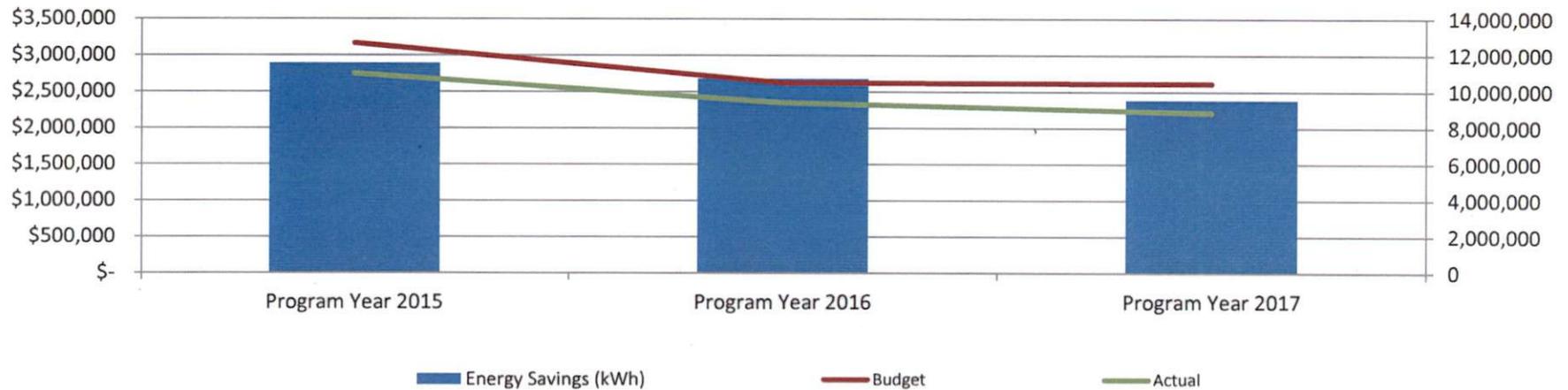


Efficient Cooling Solutions

Select program from dropdown menu to view details.

Efficient Cooling Solutions

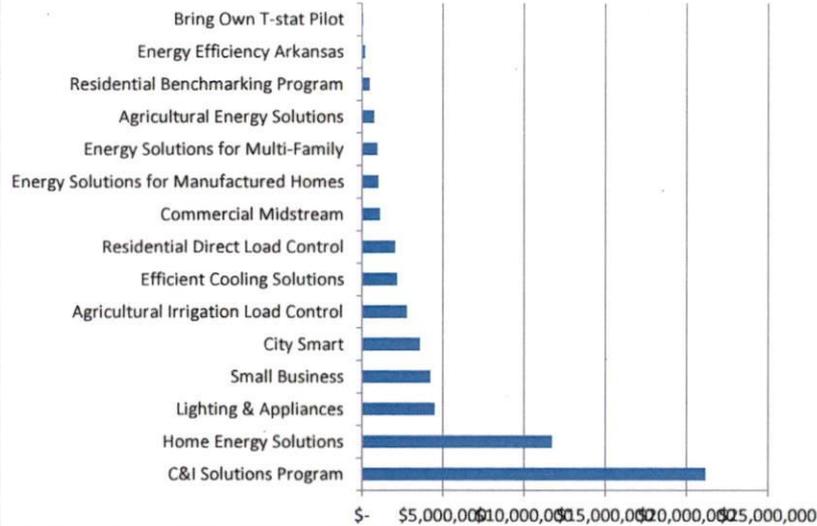
Program	Expenditures			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2015	\$ 3,165,940	\$ 2,745,610	87%	9,100,000	11,572,605	127%	4,105	4,789	117%	10,061	7,478	74%
Program Year 2016	\$ 2,620,953	\$ 2,344,395	89%	16,141,000	10,724,845	66%	8,600	3,348	39%	10,061	4,324	43%
Program Year 2017	\$ 2,608,580	\$ 2,209,519	85%	17,446,000	9,548,026	55%	10,228	2,908	28%	5,999	2,548	42%



2017 Portfolio Results Detail

Program Name	Target Sector	Costs			Savings (kWh)			Participants			TRC Ratio
		Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Bring Own T-stat Pilot	Residential	\$ 130,676	\$ 68,912	53%	0	0	-	750	55	7%	0.00
Efficient Cooling Solutions	Residential	\$ 2,608,580	\$ 2,209,519	85%	17,446,000	9,548,026	55%	5,999	2,548	42%	1.96
Energy Solutions for Manufactured Homes	Residential	\$ 1,066,973	\$ 1,013,729	95%	1,996,069	4,690,095	235%	900	641	71%	8.56
Energy Solutions for Multi-Family	Residential	\$ 1,087,309	\$ 964,280	89%	3,011,306	6,111,955	203%	4,000	1,898	47%	9.82
Home Energy Solutions	Residential	\$ 11,798,620	\$ 11,736,577	99%	22,638,739	25,757,464	114%	7,222	7,733	107%	2.82
Lighting & Appliances	Residential	\$ 4,708,434	\$ 4,521,562	96%	29,927,961	50,040,143	167%	2,261,358	291,634	13%	7.13
Residential Benchmarking Program	Residential	\$ 557,798	\$ 468,626	84%	9,118,435	7,901,231	87%	208,264	336,309	161%	0.87
Residential Direct Load Control	Residential	\$ 3,044,555	\$ 2,064,063	68%	0	1,734	-	22,184	23,075	104%	3.16
Small Business	Small Business	\$ 4,184,886	\$ 4,269,781	102%	13,247,024	23,005,941	174%	1,100	744	68%	1.92
C&I Solutions Program	Commercial & Industrial	\$ 23,644,196	\$ 21,195,549	90%	109,920,001	98,073,142	89%	850	764	90%	1.76
City Smart	Commercial & Industrial	\$ 3,664,805	\$ 3,638,872	99%	12,806,791	19,940,702	156%	85	367	432%	1.54
Commercial Midstream	Commercial & Industrial	\$ 1,228,253	\$ 1,116,444	91%	11,466,158	12,312,436	107%	849	912	107%	3.77
Agricultural Energy Solutions	Agriculture	\$ 1,018,569	\$ 765,606	75%	6,551,697	7,609,051	116%	118	51	43%	4.42
Agricultural Irrigation Load Control	Agriculture	\$ 3,092,606	\$ 2,837,698	92%	0	0	-	1,271	1,035	81%	1.43
Energy Efficiency Arkansas	Residential	\$ 198,507	\$ 197,986	100%	0	0	-	0	0	-	0.00
Regulatory		\$ -	\$ 72,440								
TOTAL:		\$ 62,034,767	\$ 57,141,646	92%	238,130,182	264,991,920	111%	2,514,950	667,766	27%	2.52

Costs



Savings (kWh)



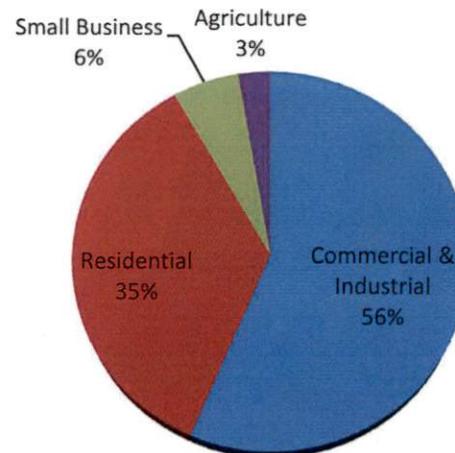
2017 Portfolio Results Detail by Target Sector

Target Sector	Costs			Savings (kWh)			Participants			TRC Ratio
	Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Residential	\$ 25,201,452	\$ 23,245,255	92%	84,138,511	104,050,648	124%	2,510,677	663,893	26%	4.03
Small Business	\$ 4,184,886	\$ 4,269,781	102%	13,247,024	23,005,941	174%	1,100	744	68%	1.92
Commercial & Industrial	\$ 28,537,253	\$ 25,950,865	91%	134,192,950	130,326,280	97%	1,784	2,043	115%	1.84
Municipalities/Schools	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Agriculture	\$ 4,111,175	\$ 3,603,305	88%	6,551,697	7,609,051	116%	1,389	1,086	78%	1.96
Other	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Res/Small Business	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Res/C&I	\$ -	\$ -	-	0	0	-	0	0	-	n/a
Small Business/C&I	\$ -	\$ -	-	0	0	-	0	0	-	n/a
All Classes	\$ -	\$ -	-	0	0	-	0	0	-	n/a
	-	-	-	-	-	-	-	-	-	-
TOTAL	\$ 62,034,767	\$ 57,069,206	92%	238,130,182	264,991,920	111%	2,514,950	667,766	27%	2.52

Select the Data to be Displayed in Chart

Savings (kWh)

Savings (kWh)



Level of Adoption of NAPEE "Best Practic

Item #	1a.		1b.	1c.	EE Total Portfolio Expenditures (A) (\$000's)	2a.	
Program Year	FTEs	FTEs / \$1M of EE Spending	Training Sessions Attended	Training Sessions Man-Hours		Planning & Design (B) (\$000's)	As % of Total Portfolio Expenditures (%=B/A)
2017	70	1.2	175	12,704	\$ 57,142	\$ 10	0.0%

Index to Docket No. 10-010-U Issue #8 Items	
Item #	Description
1	Program Staffing and Training Requirements
2	DSM Program Design & Implementation
3	DSM Program Evaluation
4	Estimation of DSM Resource Potential
5	Shareholder Incentives for Program Performance
6	Resource Planning with Energy Efficiency
7	Utility Best Practices Guidance for Providing Business Customers with Energy Use Cost Dat
8	Customer Incentives for Energy Efficiency Through Electric and Natural Gas Rate Design

es" (Issue #8)

2b.		3a.	
Implementa- tion (C) (C=A-B-D) (\$000's)	As % of Total Portfolio Expenditures (%=C/A)	EM&V (D) (\$000's)	As % of Total Portfolio Expenditures (%=D/A)
\$ 55,846	97.7%	\$ 1,286	2.2%

	Where Available?
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	Above
	Narrative Section 1.0
	Incentives Section
	Narrative Section 1.0
a	Narrative Section 3.3
	Narrative Section 3.3

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Program Name	Target Sector	Program Type	Delivery Channel
Lighting & Appliances	Residential	Consumer Product Rebate	Retail Outlets
Home Energy Solutions	Residential	Whole Home	Implementing Contractor
Efficient Cooling Solutions	Residential	Measure/Technology Focus	Implementing Contractor
Energy Solutions for Multi-Family	Residential	Market Specific/Hard to Reach	Direct Install
Energy Solutions for Manufactured Homes	Residential	Market Specific/Hard to Reach	Direct Install
Residential Benchmarking Program	Residential	Behavior/Education	Implementing Contractor
Residential Direct Load Control	Residential	Demand Response	Implementing Contractor
Energy Efficiency Arkansas	Residential	Other	Statewide Administrator
Commercial Midstream	Commercial & Industrial	Consumer Product Rebate	Retail Outlets
C&I Solutions Program	Commercial & Industrial	Custom	Trade Ally
Small Business	Small Business	Market Specific/Hard to Reach	Trade Ally
City Smart	Commercial & Industrial	Market Specific/Hard to Reach	Trade Ally
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	Implementing Contractor
Agricultural Irrigation Load Control	Agriculture	Demand Response	Utility Outreach (email/direct mail)
Bring Own T-stat Pilot	Residential	Demand Response	Trade Ally
Empty			

2017 Portfolio Data

Program Name	Expenses		Energy Savings (kWh)		Demand Savings (kW)		Participants	
	Budget	Actual	Plan	Evaluated	Plan	Evaluated	Plan	Actual
Lighting & Appliances	\$ 4,708,434	\$ 4,521,562	29,927,961	50,040,143	6,533	9,908	2,261,358	291,634
Home Energy Solutions	\$ 11,798,620	\$ 11,736,577	22,638,739	25,757,464	10,440	10,122	7,222	7,733
Efficient Cooling Solutions	\$ 2,608,580	\$ 2,209,519	17,446,000	9,548,026	10,228	2,908	5,999	2,548
Energy Solutions for Multi-Family	\$ 1,087,309	\$ 964,280	3,011,306	6,111,955	1,716	2,526	4,000	1,898
Energy Solutions for Manufactured Homes	\$ 1,066,973	\$ 1,013,729	1,996,069	4,690,095	393	1,083	900	641
Residential Benchmarking Program	\$ 557,798	\$ 468,626	9,118,435	7,901,231	6,718	5,351	208,264	336,309
Residential Direct Load Control	\$ 3,044,555	\$ 2,064,063	0	1,734	35,000	37,612	22,184	23,075
Energy Efficiency Arkansas	\$ 198,507	\$ 197,986	0	0	0	0	0	0
Commercial Midstream	\$ 1,228,253	\$ 1,116,444	11,466,158	12,312,436	1,654	3,452	849	912
C&I Solutions Program	\$ 23,644,196	\$ 21,195,549	109,920,001	98,073,142	17,364	12,174	850	764
Small Business	\$ 4,184,886	\$ 4,269,781	13,247,024	23,005,941	2,841	2,817	1,100	744
City Smart	\$ 3,664,805	\$ 3,638,872	12,806,791	19,940,702	2,598	3,203	85	367
Agricultural Energy Solutions	\$ 1,018,569	\$ 765,606	6,551,697	7,609,051	937	1,040	118	51
Agricultural Irrigation Load Control	\$ 3,092,606	\$ 2,837,698	0	0	31,000	12,216	1,271	1,035
Bring Own T-stat Pilot	\$ 130,676	\$ 68,912	0	0	580	0	750	55
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0
Empty	\$ -	\$ -	0	0	0	0	0	0

Main Menu

Program Name	TRC					
	Lifetime Savings (MWh)	Total Cost	Total Benefits	Net Benefits	Ratio	Levelized cost
Lighting & Appliances	718,052	\$ 5,767	\$ 41,147	\$ 35,379	7.1	\$ 0.0122
Home Energy Solutions	421,459	\$ 11,737	\$ 33,081	\$ 21,344	2.8	\$ 0.0444
Efficient Cooling Solutions	88,580	\$ 2,217	\$ 4,346	\$ 2,128	2.0	\$ 0.0333
Energy Solutions for Multi-Family	74,760	\$ 400	\$ 3,930	\$ 3,530	9.8	\$ 0.0077
Energy Solutions for Manufactured Homes	74,732	\$ 393	\$ 3,364	\$ 2,971	8.6	\$ 0.0083
Residential Benchmarking Program	7,901	\$ 324	\$ 282	\$ (42)	0.9	\$ 0.0435
Residential Direct Load Control	2	\$ 1,368	\$ 4,324	\$ 2,957	3.2	\$ 835.9977
Energy Efficiency Arkansas	0	\$ 198	\$ -	\$ (198)	0.0	n/a
Commercial Midstream	184,687	\$ 2,401	\$ 9,045	\$ 6,644	3.8	\$ 0.0201
C&I Solutions Program	1,351,232	\$ 30,898	\$ 54,386	\$ 23,487	1.8	\$ 0.0342
Small Business	338,417	\$ 6,765	\$ 13,010	\$ 6,245	1.9	\$ 0.0306
City Smart	278,562	\$ 7,149	\$ 10,992	\$ 3,843	1.5	\$ 0.0386
Agricultural Energy Solutions	76,872	\$ 577	\$ 2,551	\$ 1,975	4.4	\$ 0.0102
Agricultural Irrigation Load Control	0	\$ 2,688	\$ 3,853	\$ 1,166	1.4	n/a
Bring Own T-stat Pilot	0	\$ 69	\$ -	\$ (69)	0.0	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a
Empty	0	\$ -	\$ -	\$ -	n/a	n/a

Annual Budget & Actual Cost

Ann

Program Name	Target Sector
1. Lighting & Appliances	Residential
2. Home Energy Solutions	Residential
3. Efficient Cooling Solutions	Residential
4. Energy Solutions for Multi-Family	Residential
5. Energy Solutions for Manufactured Homes	Residential
6. Residential Benchmarking Program	Residential
7. Residential Direct Load Control	Residential
8. Energy Efficiency Arkansas	Residential
9. Commercial Midstream	Commercial & Industrial
10. C&I Solutions Program	Commercial & Industrial
11. Small Business	Small Business
12. City Smart	Commercial & Industrial
13. Agricultural Energy Solutions	Agriculture
14. Agricultural Irrigation Load Control	Agriculture
15. Bring Own T-stat Pilot	Residential
16. Empty	
17. Empty	
18. Empty	
19. Empty	
20. Empty	
Regulatory	

2016		2017		20
Budget	Actual	Budget	Actual	Plan
\$ 5,100,501	\$ 4,723,152	\$ 4,708,434	\$ 4,521,562	31,321,000
\$ 15,097,877	\$ 14,042,588	\$ 11,798,620	\$ 11,736,577	25,612,000
\$ 2,620,953	\$ 2,344,395	\$ 2,608,580	\$ 2,209,519	16,141,000
\$ 701,785	\$ 688,946	\$ 1,087,309	\$ 964,280	2,905,000
\$ 634,547	\$ 810,080	\$ 1,066,973	\$ 1,013,729	1,671,000
\$ 686,161	\$ 598,198	\$ 557,798	\$ 468,626	6,328,000
\$ 4,332,150	\$ 4,052,965	\$ 3,044,555	\$ 2,064,063	0
\$ 326,589	\$ 230,642	\$ 198,507	\$ 197,986	0
\$ 1,153,018	\$ 1,033,206	\$ 1,228,253	\$ 1,116,444	13,101,000
\$ 23,308,895	\$ 19,748,340	\$ 23,644,196	\$ 21,195,549	110,073,000
\$ 3,247,526	\$ 3,293,002	\$ 4,184,886	\$ 4,269,781	11,088,000
\$ 4,265,759	\$ 4,215,474	\$ 3,664,805	\$ 3,638,872	12,787,000
\$ 965,016	\$ 887,504	\$ 1,018,569	\$ 765,606	6,542,000
\$ 3,522,940	\$ 3,586,750	\$ 3,092,606	\$ 2,837,698	0
\$ -	\$ -	\$ 130,676	\$ 68,912	0
\$ -	\$ -	\$ -	\$ -	0
\$ -	\$ -	\$ -	\$ -	0
\$ -	\$ -	\$ -	\$ -	0
\$ -	\$ -	\$ -	\$ -	0
\$ -	\$ -	\$ -	\$ -	0
\$ -	\$ 14,865	\$ -	\$ 72,440	0

Total Portfolio - Current Programs \$ 65,963,717 \$ 60,270,107 \$ 62,034,767 \$ 57,141,646 237,569,000

Program Year	Company Statistics		Expe Budget
	Revenue and Sales		
	Revenue	Sales (kWh)	
2017	\$ 1,739,545,000	20,888,455	#####
2016	\$ 1,733,733,000	20,639,386	#####
2015	\$ 1,820,805,000	21,160,228	#####
2014	\$ 1,642,896,000	21,001,325	#####

Annual Net Energy Savings (kWh)

16	2017	
	Plan	Evaluated
53,871,110	29,927,961	50,040,143
24,842,378	22,638,739	25,757,464
10,724,845	17,446,000	9,548,026
2,794,597	3,011,306	6,111,955
1,620,786	1,996,069	4,690,095
8,142,462	9,118,435	7,901,231
52,172	0	1,734
0	0	0
10,411,844	11,466,158	12,312,436
91,431,787	109,920,001	98,073,142
17,197,779	13,247,024	23,005,941
25,040,969	12,806,791	19,940,702
7,159,184	6,551,697	7,609,051
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Annual Net Demand Savings (kW)

2016		2017	
Plan	Evaluated	Plan	Evaluated
3,600	8,160	6,533	9,908
9,000	8,535	10,440	10,122
8,600	3,348	10,228	2,908
700	865	1,716	2,526
600	192	393	1,083
4,500	5,863	6,718	5,351
27,300	28,099	35,000	37,612
0	0	0	0
2,500	1,886	1,654	3,452
15,100	11,123	17,364	12,174
1,700	2,024	2,841	2,817
2,100	4,410	2,598	3,203
900	965	937	1,040
14,900	17,027	31,000	12,216
0	0	580	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

253,289,913 238,130,182 264,991,920 91,500 92,496 128,003 104,412

EE Portfolio		
Uses	Savings (kWh)	
Actual	Budget	Actual
#####	238,130,182	264,991,920
#####	194,165	253,201
#####	186,555	229,268
#####	197,564	205,507

I/A

Duke Energy Progress, LLC
 Comparison of "As-Filed" Cost-Effectiveness Scores to Previous DSM/EE Riders
 Docket Number E-2, Sub 1206

Public Staff
 Williamson Exhibit #1
 E-2, Sub 1206

Changes from Sub
 1174 to Sub 1206

Program	Evans Exhibit 7 in Sub 1145				Evans Exhibit 7 in Sub 1174				Evans Exhibit 7 in Sub 1206				TRC % Change	
	UCT	TRC	RIM	PCT	UCT	TRC	RIM	PCT	UCT	TRC	RIM	PCT		
Residential Programs														
Appliance Recycling Program	1.07	1.43	0.50	-	-	-	-	-	-	-	-	-	-	-
Energy Education Program for Schools	1.15	1.62	0.54	-	1.62	2.24	0.76	-	1.35	1.38	0.51	10.30	-	-38.7%
Energy Efficient Appliances & Devices	-	-	-	-	-	-	-	-	14.59	15.40	0.88	34.77	-	-
Energy Efficient Lighting	2.36	4.09	0.74	8.77	1.79	2.58	0.57	6.36	2.01	2.70	0.71	6.42	-	4.6%
Residential Smart Saver (Home Energy Improvement)	0.91	0.67	0.57	1.30	0.91	0.57	0.48	1.36	1.60	0.97	0.69	1.66	-	71.1%
Multi-Family	3.39	6.19	0.81	-	3.00	5.58	0.64	-	2.65	2.65	0.54	24.31	-	-52.5%
Neighborhood Energy Saver	0.57	1.60	0.37	-	0.46	1.55	0.31	-	0.49	0.49	0.31	2.23	-	-68.1%
Residential Energy Assessments	2.23	2.53	0.77	-	1.54	1.71	0.60	-	2.15	2.19	0.56	49.13	-	28.2%
Residential New Construction	2.27	1.26	0.97	1.88	1.96	1.03	0.86	1.85	1.55	4.93	1.30	6.84	-	376.5%
Save Energy and Water Kit	7.77	19.61	0.84	-	12.43	27.29	0.95	-	-	-	-	-	-	-
Residential Home Advantage	-	-	-	-	-	-	-	-	-	-	-	-	-	-
My Home Energy Report	1.42	1.42	0.08	-	0.96	0.96	0.48	-	1.01	1.01	0.43	-	-	5.4%
EnergyWise Home	10.06	94.65	10.06	-	9.28	58.30	9.28	-	5.27	15.93	5.27	-	-	-72.7%
Residential Total	3.07	3.16	0.66	10.66	2.79	2.70	1.03	5.28	2.56	3.68	1.11	7.90	-	36.3%
Non-Residential Programs														
Business Energy Reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SmartSaver EE Products and Assessment (formally EE for Business)	-	-	-	-	-	-	-	-	3.36	1.68	0.87	3.32	-	-
Energy Efficient Lighting	6.13	10.61	1.92	8.77	4.63	7.98	1.21	12.09	4.03	2.03	0.86	4.04	-	-74.5%
Smart Saver Performance (Custom) ¹	3.94	0.98	1.22	1.33	2.45	1.07	0.77	1.99	2.61	1.17	0.94	2.19	-	9.3%
Smart Saver Performance (Prescriptive) ¹	2.64	1.19	1.02	1.79	3.75	0.92	0.95	1.64	4.05	0.99	1.09	1.54	-	8.1%
Smart Saver Performance Incentive	0.54	0.40	0.42	1.58	0.72	1.60	0.87	2.87	2.51	1.55	0.86	2.85	-	-3.3%
Small Business Energy Saver	3.13	2.00	1.13	2.83	0.72	1.07	0.62	-	0.27	0.46	0.27	-	-	-57.4%
EnergyWise® for Business	1.80	2.32	1.25	-	2.06	33.28	2.06	-	1.84	28.03	1.84	-	-	-15.8%
Commercial Industrial Governmental Demand Response	2.67	4.33	2.67	-	2.41	1.56	1.01	2.37	2.59	1.77	0.92	3.21	-	13.8%
Non-Residential Total	2.87	1.77	1.25	2.36	2.41	1.56	1.01	2.37	2.59	1.77	0.92	3.21	-	13.8%
Overall Portfolio total	2.99	2.45	0.79	5.94	2.63	2.12	1.03	3.67	2.57	2.51	1.02	4.52	-	18.4%

¹ Similar to what DEC has done, DEP is combining the Performance Custom and Performance Prescriptive programs due to their similarities in participants and renaming them Non-Residential Smart Saver (formerly known as EE for Business)

F/A

Public Staff
 Williamson Exhibit #2
 E-2, Sub 1206

Program	TRC 2016	TRC 2017	TRC 2018
Residential Programs			
Appliance Recycling Program	-0.96		
Energy Education Program for Schools	2.97	2.36	3.02
EnergyWise Home	50.62	153.14	55.92
Home Energy Improvement	0.64	0.48	0.60
Neighborhood Energy Saver	1.58	2.13	2.51
Multi-Family Energy Efficiency Program	5.78	7.05	5.29
My Home Energy Report	1.35	1.08	0.97
Residential Energy Assessments	4.26	3.49	3.45
Residential New Construction	1.39	1.24	2.00
Energy Efficient Lighting	4.15	3.79	3.35
Save Energy and Water Kit	51.94	75.82	26.74
Residential Total	3.82	3.27	3.46
Non-Residential Programs			
Energy Efficiency for Business	1.54	1.44	2.37
Business Energy Report	4.70	0.04	
Performance Incentive		1.11	1.14
CIG DRA		28.54	28.28
EnergyWise for Business	0.16	0.65	0.65
Energy Efficient Lighting	12.96	9.47	8.92
Small Business Energy Saver	2.36	2.03	1.76
Non-Residential Total	1.74	1.69	2.32
Overall Portfolio Total	2.74	2.35	2.86