

Evaluation, Measurement, and Verification Report for Virginia Electric and Power Company (Dominion Energy)

Case No. PUR-2017-00129 (Virginia)
Docket No. E-22 Sub 556 (North Carolina)

VOLUME 2 OF 3 **PUBLIC VERSION**

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A. PROGRAM PERFORMANCES INDICATOR TABLES FOR VIRGINIA

A.1 Virginia Residential Income and Age Qualifying Home Improvement Program 2015-2018

A.1.1 2015-2018 Annual Indicator Tables

VA- Residential Income and Age Qualifying Home Improvement Program		2015	2016	2017	2018	2015-2018
Category	Indicator	Total	Total	Total ²	Total	Total
O&M(\$)	Direct Rebate					
O&M(\$)	Direct Implementation					
O&M(\$)	Direct EM&V					
O&M(\$)	Indirect Other (Administrative)	\$48,256	\$191,950	\$199,872	\$80,889	\$520,967
Costs (\$)	Total					
Costs (\$)	Planned					
Costs (\$)	Variance					
	Annual % of Planned	68%	108%	109%	60%	94%
Participants ¹	Total (Gross)	1,523	8,403	5,970	1,141	17,037
	Planned (Gross)	1,849	3,843	3,846	2,000	11,538
	Variance	-326	4,560	2,124	-859	5,499
	Annual % of Planned (Gross)	82%	219%	155%	57%	148%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	984,230	3,575,492	2,431,737	447,775	7,439,235
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	984,230	3,575,492	2,431,737	447,775	7,439,235
80%	Net-To-Gross Adjustment (kWh/yr)	-196,846	-715,098	-486,347	-89,555	-1,487,847
	Net Adjusted Savings (kWh/yr)	787,384	2,860,394	1,945,390	358,220	5,951,388
	Planned Net Savings (kWh/yr)	1,810,380	998,136	765,945	175,247	3,749,708
	Annual % Toward Planned Net Savings (kWh)	43%	287%	254%	204%	159%
	Avg. Gross Savings Per Participant (kWh/yr)	646	426	407	392	437
	Avg. Net Savings Per Participant (kWh/yr)	517	340	326	314	349
Installed kW	Total Gross Demand Reduction (kW)	80.2	398.0	228.1	34.9	741.2
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	80.2	398.0	228.1	34.9	741.2
80%	Net-To-Gross Adjustment (kW)	-16.0	-79.6	-45.6	-7.0	-148.2
	Net Adjusted Demand Reduction (kW)	64.1	318.4	182.5	27.9	592.9
	Planned Net Demand Reduction (kW)	415.0	217.7	170.2	0.0	802.9
	Annual % Toward Planned Net Reduction (kW)	15%	146%	107%	N/A	74%
	Avg. Gross Demand Reduction Per Participant (kW)	0.05	0.05	0.04	0.03	0.04
	Avg. Net Demand Reduction Per Participant (kW)	0.04	0.04	0.03	0.02	0.03
Program Performance	Annual \$Admin. per Participant (Gross)	\$32	\$23	\$33	\$71	\$31
	Annual \$Admin. per kWh/year (Gross)	\$0.05	\$0.05	\$0.08	\$0.18	\$0.07
	Annual \$Admin. per kW (Gross)	\$602	\$482	\$876	\$2,318	\$703
	Annual \$EM&V per \$Total	1%	1%	2.3%	6.8%	2%
	Annual \$Rebate per Participant (Gross)	\$582	\$612	\$644	\$626	\$621

1. A participant is unique account that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.
2. The 2017 total gross deemed savings values reported in this table include adjustments of 12183 kWh/year and -1.1 kW made to the January 2017 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017. Specifically, the correction was in section 2.1.5 for "Low-Flow Showerhead" measures, to the " ΔT " variable, which is a measure of the change in temperature of the water used for shower and temperature entering the house ($\Delta T = T_{\text{shower}} - T_{\text{in house}}$). STEP Manual 7.0.0 reported the value as 44.9°F, but has been corrected to 44.1°F. This correction is reflected in STEP Manual version 8.0.0 in this EM&V report.

A.1.2 2018 Monthly Indicator Tables

VA- Residential Income and Age Qualifying Home Improvement Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2015-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$5,257	\$5,115	\$565	\$368	\$2,819	\$366	\$1,173	\$898	\$8,941	\$7,418	\$19,709	\$28,259	\$80,889	\$520,967	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	4%	8%	8%	8%	11%	11%	12%	12%	19%	25%	39%	60%	60%	94%	
Participants ¹																
	Total (Gross)	2	0	0	0	0	0	0	0	75	100	387	577	1,141	17,037	
	Planned (Gross)	167	167	167	167	167	167	167	167	166	166	166	166	2,000	11,538	
	Variance	-165	-167	-167	-167	-167	-167	-167	-167	-91	-66	221	411	-859	5,499	
	Annual % of Planned (Gross)	0%	0%	0%	0%	0%	0%	0%	0%	4%	9%	28%	57%	57%	148%	
Installed kWh/year																
	Total Gross Deemed Savings (kWh/yr)	873	0	0	0	0	0	0	0	25,776	54,937	221,828	144,360	447,775	7,439,235	
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjusted Savings (kWh/yr)	873	0	0	0	0	0	0	0	25,776	54,937	221,828	144,360	447,775	7,439,235	
80%	Net-To-Gross Adjustment (kWh/yr)	-175	0	0	0	0	0	0	0	-5,155	-10,987	-44,366	-28,872	-49,555	-1,487,847	
	Net Adjusted Savings (kWh/yr)	699	0	0	0	0	0	0	0	20,621	43,949	177,462	115,488	358,220	5,951,388	
	Planned Net Savings (kWh/yr)	14,604	14,604	14,604	14,604	14,604	14,604	14,604	14,604	14,604	14,604	14,604	14,604	175,247	3,749,708	
	Annual % Toward Planned Net Savings (kWh)	0%	0%	0%	0%	0%	0%	0%	0%	12%	37%	139%	204%	204%	159%	
	Avg. Gross Savings Per Participant (kWh/yr)	437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	344	549	573	250	392	437	
	Avg. Net Savings Per Participant (kWh/yr)	349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	275	439	459	200	314	349	
Installed kW																
	Total Gross Demand Reduction (kW)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	3.2	18.2	11.2	34.9	741.2	
100%	Realization Rate Adjustment (kW)	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	
	Realization Rate Adjusted Gross Demand Reduction (kW)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	3.2	18.2	11.2	34.9	741.2	
80%	Net-To-Gross Adjustment (kW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.5	-0.6	-3.6	-2.2	-7.0	-148.2	
	Net Adjusted Demand Reduction (kW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.5	14.6	9.0	27.9	592.9	
	Planned Net Demand Reduction (kW)	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	
	Annual % Toward Planned Net Reduction (kW)	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	
	Avg. Gross Demand Reduction Per Participant (kW)	0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.03	0.03	0.05	0.02	0.03	0.04	
	Avg. Net Demand Reduction Per Participant (kW)	0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02	0.03	0.04	0.02	0.02	0.03	
Program Performance																
	Annual \$ Admin. per Participant (Gross)	\$2,629	\$5,186	\$5,469	\$5,653	\$7,062	\$7,245	\$7,832	\$8,281	\$331	\$186	\$93	\$71	\$71	\$31	
	Annual \$ Admin. per kWh/year (Gross)	\$6	\$12	\$13	\$13	\$16	\$17	\$18	\$19	\$1	\$0	\$0	\$0	\$0.18	\$0.07	
	Annual \$ Admin. per kW (Gross)	\$101,274	\$199,800	\$210,687	\$217,770	\$272,069	\$279,125	\$301,723	\$319,017	\$11,071	\$6,033	\$2,223	\$2,318	\$2,318	\$703	
	Annual \$ EM&V per \$ Total	6.6%	8.4%	8.0%	7.7%	20.2%	21.3%	21.6%	22.4%	14.6%	11.7%	7.6%	6.8%	6.8%	2%	
	Annual \$ Rebate per Participant (Gross)	\$711	\$711	\$711	\$711	\$711	\$711	\$711	\$711	\$172	\$574	\$611	\$626	\$626	\$621	

A.2 Virginia Non-residential Lighting Systems and Controls Program 2014-2018

A.2.1 2014-2018 Annual Indicator Tables

VA- Non-Residential Lighting Systems & Controls Program		2014	2015	2016	2017	2018	2014-2018
Category	Indicator	Total	Total	Total ²	Total	Total	Program Total
O&M (\$)	Direct Rebate						
O&M (\$)	Direct Implementation						
O&M (\$)	Direct EM&V						
O&M (\$)	Indirect Other (Administrative)	\$39,157	\$191,137	\$214,891	\$351,449	\$351,760	\$1,148,395
Costs (\$)	Total						
Costs (\$)	Planned						
Costs (\$)	Variance						
	Annual % of Planned	43%	123%	132%	170%	99%	119%
Participants ¹	Total (Gross)	118	1,241	1,203	868	649	4,079
	Planned (Gross)	688	1,504	1,531	1,553	1,807	7,083
	Variance	-570	-263	-328	-685	-1,158	-3,004
	Annual % of Planned (Gross)	17%	83%	79%	56%	36%	58%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	4,749,693	50,828,062	65,876,985	71,024,607	45,157,541	237,636,888
	100% Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	4,749,693	50,828,062	65,876,985	71,024,607	45,157,541	237,636,888
	70% Net-To-Gross Adjustment (kWh/yr)	-1,424,908	-15,248,419	-19,763,096	-21,307,382	-13,547,262	-71,291,066
	Net Adjusted Savings (kWh/yr)	3,324,785	35,579,643	46,113,890	49,717,225	31,610,279	166,345,821
	Planned Net Savings (kWh/yr)	12,317,239	27,461,536	24,119,220	33,214,031	40,368,376	137,480,402
	Annual % Toward Planned Net Savings (kWh)	27%	130%	191%	150%	78%	121%
	Avg. Gross Savings Per Participant (kWh/yr)	40,252	40,957	54,761	81,826	69,580	58,259
	Avg. Net Savings Per Participant (kWh/yr)	28,176	28,670	38,332	57,278	48,706	40,781
Installed kW	Total Gross Demand Reduction (kW)	998.5	10,674.2	15,380.0	11,958.2	7,222.3	46,233.2
	100% Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	998.5	10,674.2	15,380.0	11,958.2	7,222.3	46,233.2
	70% Net-To-Gross Adjustment (kW)	-299.5	-3,202.3	-4,614.0	-3,587.5	-2,166.7	-13,870.0
	Net Adjusted Demand Reduction (kW)	698.9	7,472.0	10,766.0	8,370.8	5,055.6	32,363.2
	Planned Net Demand Reduction (kW)	3,228.9	7,670.4	4,089.4	5,486.3	7,269.0	27,744.0
	Annual % Toward Planned Net Reduction (kW)	22%	97%	263%	153%	70%	117%
	Avg. Gross Demand Reduction Per Participant (kW)	8.5	8.6	12.8	13.8	11.1	11.3
	Avg. Net Demand Reduction Per Participant (kW)	5.9	6.0	8.9	9.6	7.8	7.9
Program Performance	Annual \$Admin. per Participant (Gross)	\$332	\$154	\$179	\$405	\$542	\$282
	Annual \$Admin. per kWh/year (Gross)	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00
	Annual \$Admin. per kW (Gross)	\$39	\$18	\$14	\$29	\$49	\$25
	Annual SEM&V per \$Total	5.1%	1.8%	1.5%	1.1%	1.6%	1.6%
	Annual \$Rebate per Participant (Gross)	\$4,355	\$4,487	\$5,025	\$8,725	\$7,668	\$6,050

1. A participant is a unique account number.
2. The 2016 total gross deemed savings values reported in this table differs from values in the May 1, 2017 EM&V report, and have been refiled with the Commission. The adjustments totaled -14,862,478 kWh/year and 168 kW for 2016 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017, in section 9.1.1. The adjustment was to waste heat factors (WHFe and WHFd) applied to lighting fixtures installed in 2016, where the program participant building HVAC systems was assumed to be heat pump heating and cooling systems, rather than the previous assumption of AC cool and non-electric heat systems. This adjustment was made in response to requests by the North Carolina Public Staff Utilities Commission Re: Docket No. E-22, Sub 545, on October 23, 2017. It is reflected in STEP Manual version 8.0.0 in this EM&V report.

A.2.2 2018 Monthly Indicator Tables

VA-Non-Residential Lighting Systems & Controls Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2014-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$9,584	\$30,221	\$19,894	\$11,038	\$42,810	\$24,363	\$26,102	\$23,483	\$34,221	\$50,813	\$28,327	\$50,902	\$351,760	\$1,148,395	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	3%	11%	17%	20%	32%	39%	46%	53%	62%	77%	85%	99%	99%	119%	
Participants ¹	Total (Gross)	13	60	32	22	40	47	48	64	66	134	47	76	649	4,079	
	Planned (Gross)	151	151	151	151	151	151	151	150	150	150	150	150	1,807	7,083	
	Variance	-138	-91	-119	-129	-111	-104	-103	-86	-84	-16	-103	-74	-1,158	-3,004	
	Annual % of Planned (Gross)	1%	4%	6%	7%	9%	12%	14%	18%	22%	29%	32%	36%	36%	58%	
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	929,648	4,014,106	2,796,334	1,213,772	5,058,618	3,556,513	3,705,963	2,720,073	3,613,865	7,284,082	3,695,756	6,568,810	45,157,541	237,636,888	
	100% Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjusted Savings (kWh/yr)	929,648	4,014,106	2,796,334	1,213,772	5,058,618	3,556,513	3,705,963	2,720,073	3,613,865	7,284,082	3,695,756	6,568,810	45,157,541	237,636,888	
	70% Net-To-Gross Adjustment (kWh/yr)	-278,894	-1,204,232	-838,900	-364,131	-1,517,585	-1,066,954	-1,111,789	-816,022	-1,084,160	-2,185,225	-1,108,727	-1,970,643	-13,547,262	-71,291,066	
	Net Adjusted Savings (kWh/yr)	650,753	2,809,874	1,957,434	849,640	3,541,033	2,489,559	2,594,174	1,904,051	2,529,706	5,098,858	2,587,029	4,598,167	31,610,279	166,345,821	
	Planned Net Savings (kWh/yr)	3,364,032	3,364,032	3,364,032	3,364,032	3,364,031	3,364,031	3,364,031	3,364,031	3,364,031	3,364,031	3,364,031	3,364,031	40,368,376	137,480,402	
	Annual % Toward Planned Net Savings (kWh)	2%	9%	13%	16%	24%	30%	37%	42%	48%	61%	67%	78%	78%	121%	
	Avg. Gross Savings Per Participant (kWh/yr)	71,511	66,902	87,385	55,171	126,465	75,670	77,208	42,501	54,756	54,359	78,633	86,432	69,580	58,259	
	Avg. Net Savings Per Participant (kWh/yr)	50,058	46,831	61,170	38,620	88,526	52,969	54,045	29,751	38,329	38,051	55,043	60,502	48,706	40,781	
	Installed kW	Total Gross Demand Reduction (kW)	133.5	625.2	271.5	144.4	951.5	499.1	551.5	442.0	607.7	1,328.8	509.9	1,157.4	7,222.3	46,233.2
100% Realization Rate Adjustment (kW)		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	
Realization Rate Adjusted Gross Demand Reduction (kW)		133.5	625.2	271.5	144.4	951.5	499.1	551.5	442.0	607.7	1,328.8	509.9	1,157.4	7,222.3	46,233.2	
70% Net-To-Gross Adjustment (kW)		-40.1	-187.6	-81.4	-43.3	-285.5	-149.7	-165.4	-132.6	-182.3	-398.6	-153.0	-347.2	-2,166.7	-13,870.0	
Net Adjusted Demand Reduction (kW)		93.5	437.6	190.0	101.1	666.1	349.3	386.0	309.4	425.4	930.1	356.9	810.2	5,055.6	32,363.2	
Planned Net Demand Reduction (kW)		606.0	606.0	606.0	606.0	606.0	606.0	606.0	606.0	606.0	605.0	605.0	605.0	7,269.0	27,744.0	
Annual % Toward Planned Net Reduction (kW)		1%	7%	10%	11%	20%	25%	31%	35%	41%	53%	58%	70%	70%	117%	
Avg. Gross Demand Reduction Per Participant (kW)		10.3	10.4	8.5	6.6	23.8	10.6	11.5	6.9	9.2	9.9	10.8	15.2	11.1	11.3	
Avg. Net Demand Reduction Per Participant (kW)		7.2	7.3	5.9	4.6	16.7	7.4	8.0	4.8	6.4	6.9	7.6	10.7	7.8	7.9	
Program Performance		Annual \$Admin. per Participant (Gross)	\$737	\$545	\$569	\$557	\$680	\$644	\$626	\$575	\$566	\$518	\$525	\$542	\$542	\$282
	Annual \$Admin. per kWh/year (Gross)	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.00	
	Annual \$Admin. per kW (Gross)	\$72	\$52	\$58	\$60	\$53	\$53	\$52	\$52	\$52	\$49	\$50	\$49	\$49	\$25	
	Annual \$EM&V per \$Total	2.9%	2.2%	1.4%	1.2%	1.9%	2.2%	2.2%	2.4%	2.0%	1.8%	1.7%	1.6%	1.6%	1.6%	
	Annual \$Rebate per Participant (Gross)	\$7,275	\$7,175	\$7,534	\$7,171	\$9,201	\$8,696	\$8,483	\$7,756	\$7,735	\$7,237	\$7,340	\$7,668	\$7,668	\$6,050	

A.3 Virginia Non-residential Heating and Cooling Efficiency Program 2014-2018

A.3.1 2014-2018 Annual Indicator Tables

VA- Non-Residential Heating & Cooling Efficiency Program		2014	2015	2016	2017	2018	2014-2018
Category	Indicator	Total	Total	Total ²	Total	Total	Program Total
O&M (\$)	Direct Rebate						
O&M (\$)	Direct Implementation						
O&M (\$)	Direct EM&V						
O&M (\$)	Indirect Other (Administrative)	\$14,267	\$38,982	\$41,094	\$69,115	\$98,564	\$262,021
Costs (\$)	Total						
Costs (\$)	Planned						
Costs (\$)	Variance						
	Annual % of Planned	30%	72%	75%	95%	88%	74%
Participants ¹	Total (Gross)	6	114	89	103	77	389
	Planned (Gross)	261	746	782	797	807	3,393
	Variance	-255	-632	-693	-694	-730	-3,004
	Annual % of Planned (Gross)	2%	15%	11%	13%	10%	11%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	1,456,991	11,129,837	13,647,306	7,526,876	9,818,796	43,579,806
	100% Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	1,456,991	11,129,837	13,647,306	7,526,876	9,818,796	43,579,806
70%	Net-To-Gross Adjustment (kWh/yr)	-437,097	-3,338,951	-4,094,192	-2,258,063	-2,945,639	-13,073,942
	Net Adjusted Savings (kWh/yr)	1,019,894	7,790,886	9,553,114	5,268,813	6,873,157	30,505,864
	Planned Net Savings (kWh/yr)	3,299,301	9,430,186	24,119,220	38,355,947	31,003,178	106,207,832
	Annual % Toward Planned Net Savings (kWh)	31%	83%	40%	14%	22%	29%
	Avg. Gross Savings Per Participant (kWh/yr)	242,832	97,630	153,341	73,076	127,517	112,030
	Avg. Net Savings Per Participant (kWh/yr)	169,982	68,341	107,338	51,154	89,262	78,421
Installed kW	Total Gross Demand Reduction (kW)	510.1	2,777.0	2,084.3	1,946.7	568.8	7,886.9
	100% Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	510.1	2,777.0	2,084.3	1,946.7	568.8	7,886.9
70%	Net-To-Gross Adjustment (kW)	-153.0	-833.1	-625.3	-584.0	-170.6	-2,366.1
	Net Adjusted Demand Reduction (kW)	357.1	1,943.9	1,459.0	1,362.7	398.1	5,520.8
	Planned Net Demand Reduction (kW)	835.2	2,387.2	4,089.6	15,592.6	7,536.0	30,440.6
	Annual % Toward Planned Net Reduction (kW)	43%	81%	36%	9%	5%	18%
	Avg. Gross Demand Reduction Per Participant (kW)	85.0	24.4	23.4	18.9	7.4	20.3
	Avg. Net Demand Reduction Per Participant (kW)	59.5	17.1	16.4	13.2	5.2	14.2
Program Performance	Annual \$Admin. per Participant (Gross)	\$2,378	\$342	\$462	\$671	\$1,280	\$674
	Annual \$Admin. per kWh/year (Gross)	\$0.01	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01
	Annual \$Admin. per kW (Gross)	\$28	\$14	\$20	\$36	\$173	\$33
	Annual SEM&V per \$Total	5.6%	6.1%	8.6%	7.6%	7.3%	7.3%
	Annual \$Rebate per Participant (Gross)	\$19,834	\$7,909	\$10,729	\$11,629	\$15,058	\$11,138

1. A participant is a unique account number.
2. The 2016 total gross deemed savings values reported in this table differs from values in the May 1, 2017 EM&V report, and have been refiled with the Commission. The adjustments totaled -154,576 kWh/year and 0 kW for 2016 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017, in section 10. The adjustment was made to full load heating hours (FLHheat) in Tables 90 and 91 to be consistent with those in the Mid-Atlantic TRM v 6, in response to requests by the North Carolina Public Staff Utilities Commission Re: Docket No. E-22, Sub 545, on October 23, 2017. This affected multiple non-residential HVAC measures (e.g. heat pumps, variable refrigerant flow, mini split systems) that reference Table 90 and 91, in multiple non-residential programs. This adjustment is reflected in STEP Manual version 8.0.0 in this EM&V report.

A.3.2 2018 Monthly Indicator Tables

VA-Non-Residential Heating & Cooling Efficiency Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2014-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$2,119	\$6,278	\$4,516	\$6,368	\$8,986	\$2,712	\$12,881	\$27,231	\$6,102	\$9,715	\$3,944	\$7,712	\$98,564	\$262,021	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	2%	8%	12%	17%	25%	28%	39%	64%	69%	78%	81%	88%	88%	74%	
Participants ¹	Total (Gross)	0	10	3	7	5	4	10	10	10	10	4	4	77	389	
	Planned (Gross)	68	68	68	67	67	67	67	67	67	67	67	67	807	3,393	
	Variance	-68	-58	-65	-60	-62	-63	-57	-57	-57	-57	-63	-63	-730	-3,004	
	Annual % of Planned (Gross)	0%	1%	2%	2%	3%	4%	5%	6%	7%	9%	9%	10%	10%	11%	
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	0	724,251	187,388	479,404	482,556	407,676	1,016,729	4,077,239	972,339	781,677	130,958	558,579	9,818,796	43,579,806	
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjusted Savings (kWh/yr)	0	724,251	187,388	479,404	482,556	407,676	1,016,729	4,077,239	972,339	781,677	130,958	558,579	9,818,796	43,579,806	
70%	Net-To-Gross Adjustment (kWh/yr)	0	-217,275	-56,216	-143,821	-144,767	-122,303	-305,019	-1,223,172	-291,702	-234,503	-39,287	-167,574	-2,945,639	-13,073,942	
	Net Adjusted Savings (kWh/yr)	0	506,975	131,172	335,583	337,789	285,373	711,710	2,854,067	680,638	547,174	91,671	391,005	6,873,157	30,505,864	
	Planned Net Savings (kWh/yr)	2,583,599	2,583,599	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	2,583,598	31,003,178	106,207,832	
	Annual % Toward Planned Net Savings (kWh)	0%	2%	2%	3%	4%	5%	7%	17%	19%	21%	21%	22%	22%	29%	
	Avg. Gross Savings Per Participant (kWh/yr)	N/A	72,425	62,463	68,486	96,511	101,919	101,673	407,724	97,234	78,168	32,740	139,645	127,517	112,030	
	Avg. Net Savings Per Participant (kWh/yr)	N/A	50,698	43,724	47,940	67,558	71,343	71,171	285,407	68,064	54,717	22,918	97,751	89,262	78,421	
Installed kW	Total Gross Demand Reduction (kW)	0.0	28.6	20.2	16.0	27.2	89.2	67.6	215.4	60.0	63.8	-43.1	24.0	568.8	7,886.9	
100%	Realization Rate Adjustment (kW)	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	
	Realization Rate Adjusted Gross Demand Reduction(kW)	0.0	28.6	20.2	16.0	27.2	89.2	67.6	215.4	60.0	63.8	-43.1	24.0	568.8	7,886.9	
70%	Net-To-Gross Adjustment (kW)	0.0	-8.6	-6.1	-4.8	-8.2	-26.8	-20.3	-64.6	-18.0	-19.1	12.9	-7.2	-170.6	-2,366.1	
	Net Adjusted Demand Reduction (kW)	0.0	20.0	14.1	11.2	19.0	62.5	47.3	150.8	42.0	44.6	-30.2	16.8	398.1	5,520.8	
	Planned Net Demand Reduction (kW)	628.0	628.0	628.0	628.0	628.0	628.0	628.0	628.0	628.0	628.0	628.0	628.0	7,536.0	30,440.6	
	Annual % Toward Planned Net Reduction (kW)	0%	0%	0%	1%	1%	2%	2%	4%	5%	5%	5%	5%	5%	18%	
	Avg. Gross Demand Reduction Per Participant (kW)	N/A	2.9	6.7	2.3	5.4	22.3	6.8	21.5	6.0	6.4	-10.8	6.0	7.4	20.3	
	Avg. Net Demand Reduction Per Participant (kW)	N/A	2.0	4.7	1.6	3.8	15.6	4.7	15.1	4.2	4.5	-7.5	4.2	5.2	14.2	
Program Performance	Annual Admin. per Participant (Gross)	N/A	\$840	\$993	\$964	\$1,131	\$1,068	\$1,125	\$1,451	\$1,308	\$1,260	\$1,245	\$1,280	\$1,280	\$674	
	Annual Admin. per kWh/year (Gross)	N/A	\$0.01	\$0.01	\$0.01	\$0.02	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	
	Annual Admin. per kW (Gross)	N/A	\$294	\$265	\$298	\$307	\$171	\$176	\$153	\$147	\$148	\$167	\$173	\$173	\$33	
	Annual SEM&V per \$ Total	19.2%	10.9%	7.1%	4.7%	10.0%	10.7%	10.8%	9.1%	8.4%	7.5%	7.3%	7.3%	7.3%	7.3%	
	Annual \$Rebate per Participant (Gross)	N/A	\$6,569	\$8,304	\$9,285	\$10,911	\$9,927	\$11,414	\$17,129	\$15,413	\$15,071	\$14,703	\$15,058	\$15,058	\$11,138	

A.4 Virginia Non-residential Window Film Program 2014-2018

A.4.1 2014-2018 Annual Indicator Tables

VA- Non-Residential Window Film Program		2014	2015	2016	2014-2015	2014-2016	2017	2014-2017	2018	2014-2018
Category	Indicator	Total	Total	Total	Program Total	Program Total	Total	Program Total	Total	Program Total
O&M (\$)	Direct Rebate									
O&M (\$)	Direct Implementation									
O&M (\$)	Direct EM&V									
O&M (\$)	Indirect Other (Administrative)	\$11,980	\$12,457	\$13,085	\$24,437	\$37,522	\$21,659	\$59,181	\$20,852	\$80,033
Capital (\$)	Direct Implementation	\$0	\$0	\$0	\$0		\$0		\$0	
Costs (\$)	Total									
Costs (\$)	Planned									
Costs (\$)	Variance									
	Annual % of Planned	54%	32%	25%	40%	33%	29%	32%	17%	27%
Participants ¹										
	Total Participants	3	22	70	25	95	59	154	91	245
	Total Square Feet	53,021	97,121	57,228	150,142	207,370	231,634	439,004	33,461	472,465
	Planned Square Feet	133,086	681,000	1,148,077	814,086	1,962,163	1,371,237	3,333,400	1,454,781	4,788,181
	Variance	-80,065	-583,879	-1,090,849	-663,944	-1,754,793	-1,139,603	-2,894,396	-1,421,320	-4,315,716
	Annual % of Planned (Gross)	40%	14%	5%	18%	11%	17%	13%	2%	10%
Square feet										
	Total Square Feet	53,021	97,121	57,228	150,142	207,370	231,634	439,004	33,461	472,465
	North Facing	11,663	23,535	13,931	35,198	49,129	48,150	97,279	2,090	99,369
	East Facing	14,597	24,260	8,105	38,857	46,962	61,663	108,625	7,387	116,012
	West Facing	15,090	22,836	15,826	37,926	53,752	62,196	115,948	12,254	128,202
	South Facing	11,671	26,490	19,366	38,161	57,527	59,625	117,152	11,730	128,882
Installed kWh/year										
	Total Gross Deemed Savings (kWh/yr)	1,152,476	3,077,815	464,794	4,230,291	4,695,085	1,734,665	6,429,750	170,954	6,600,704
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	1,152,476	3,077,815	464,794	4,230,291	4,695,085	1,734,665	6,429,750	170,954	6,600,704
80%	Net-To-Gross Adjustment (kWh/yr)	-230,495	-615,563	-92,959	-846,058	-939,017	-346,933	-1,285,950	-34,191	-1,320,141
	Net Adjusted Savings (kWh/yr)	921,980	2,462,252	371,835	3,384,233	3,756,068	1,387,732	5,143,800	136,764	5,280,563
	Planned Net Savings (kWh/yr)	2,395,548	12,258	15,842,639	2,407,806	18,250,445	15,209,376	33,459,821	10,484,938	43,944,759
	Annual % Toward Planned Net Savings (kWh)	38%	20087%	2%	141%	21%	9%	15%	1%	12%
	Avg. Gross Savings Per Participant (kWh/yr)	384,159	139,901	6,640	169,212	49,422	29,401	41,752	1,879	26,942
	Avg. Gross Savings Per Square Foot (kWh/yr)	22	32	8	28	23	7	15	5	14
	Avg. Net Savings Per Participant (kWh/yr)	307,327	111,921	5,312	135,369	39,538	23,521	33,401	1502.90	21,553
	Avg. Net Savings Per Square Foot (kWh/yr)	17	25	6	23	18	6	12	4	11
Installed kW										
	Total Gross Demand Reduction (kW)	233.1	626.6	139.7	859.7	999.4	471.5	1,470.9	57.6	1,528.5
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	233.1	626.6	139.7	859.7	999.4	471.5	1,470.9	57.6	1,528.5
80%	Net-To-Gross Adjustment (kW)	-46.6	-125.3	-27.9	-171.9	-199.9	-94.3	-294.2	-11.5	-305.7
	Net Adjusted Demand Reduction (kW)	186.5	501.2	111.8	687.8	799.5	377.2	1,176.7	46.1	1,222.8
	Planned Net Demand Reduction (kW)	532.3	2.4	14,497.4	534.7	15,032.1	13,692.8	28,724.9	9,627.0	38,351.9
	Annual % Toward Planned Net Reduction (kW)	35%	20885%	1%	129%	5%	3%	4%	0.5%	3%
	Avg. Gross Demand Reduction Per Participant (kW)	78	28	2	34	11	8	10	0.6	6
	Avg. Gross Demand Reduction Per Square Foot (kW)	0.004	0.006	0.002	0.006	0.005	0.002	0.003	0.002	0.003
	Avg. Net Demand Reduction Per Participant (kW)	62	23	2	28	8	6	8	0.5	5
	Avg. Net Demand Reduction Per Square Foot (kW)	0.004	0.005	0.002	0.005	0.004	0.002	0.003	0.00	0
Program Performance										
	Annual SAdmin. per Participant (Gross)	\$3,993	\$566	\$187	\$977	\$395	\$367	\$384	\$229	\$327
	Annual SAdmin. per kWh/year (Gross)	\$0.01	\$0.00	\$0.03	\$0.01	\$0.01	\$0.01	\$0.01	\$0.12	\$0.01
	Annual SAdmin. per kW (Gross)	\$51	\$20	\$94	\$28	\$38	\$46	\$40	\$362.0	\$52
	Annual SEM&V per \$Total	22%	17%	26%	19%	22%	16%	20%	22%	20%
	Annual SRebate per Participant (Gross)	\$6,090	\$512	\$667	\$1,181	\$802	\$3,284	\$1,753	\$285	\$1,208

1. A participant is a unique account number.

A.4.2 2018 Monthly Indicator Tables

VA- Non-Residential Window Film Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2014-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$1,556	\$2,058	\$1,211	\$1,292	\$2,619	\$2,033	\$1,370	\$2,102	\$1,686	\$1,340	\$1,597	\$1,988	\$20,852	\$80,033	
Capital (\$)	Direct Implementation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	1%	3%	4%	5%	7%	9%	10%	11%	13%	14%	15%	17%	17%	27%	
Participants ¹	Total Participants	3	10	2	4	12	6	3	9	10	12	6	14	91	245	
	Total Square Feet	5,525	3,767	633	1,721	2,955	1,696	909	3,599	5,471	2,877	1,702	2,606	33,461	472,465	
	Planned Square Feet	121,232	121,232	121,232	121,232	121,232	121,232	121,232	121,232	121,232	121,231	121,231	121,231	1,454,781	4,788,181	
	Variance	-115,707	-117,465	-120,599	-119,511	-118,277	-119,536	-120,323	-117,633	-115,761	-118,354	-119,529	-118,625	-1,421,320	-4,315,716	
	Annual % of Planned (Gross)	0%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	10%	
Square feet	Total Square Feet	5,525	3,767	633	1,721	2,955	1,696	909	3,599	5,471	2,877	1,702	2,606	33,461	472,465	
	North Facing	280	74	0	0	99	34	44	0	1,195	276	70	18	2,090	99,369	
	East Facing	0	2,604	0	71	233	343	0	2,004	455	357	697	623	7,387	116,012	
	West Facing	5,245	553	152	578	55	759	0	779	1,356	1,143	183	1,451	12,254	128,202	
	South Facing	0	536	481	1,072	2,568	560	865	816	2,465	1,101	752	514	11,730	128,882	
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	60,214	-375	5,148	10,875	3,992	8,828	3,285	22,008	17,187	11,855	9,476	18,461	170,954	6,600,704	
	100% Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjusted Savings (kWh/yr)	60,214	-375	5,148	10,875	3,992	8,828	3,285	22,008	17,187	11,855	9,476	18,461	170,954	6,600,704	
	80% Net-To-Gross Adjustment (kWh/yr)	-12,043	75	-1,030	-2,175	-798	-1,766	-657	-4,402	-3,437	-2,371	-1,895	-3,692	-34,191	-1,320,141	
	Net Adjusted Savings (kWh/yr)	48,171	-300	4,118	8,700	3,194	7,062	2,628	17,606	13,749	9,484	7,581	14,769	136,764	5,280,563	
	Planned Net Savings (kWh/yr)	873,745	873,745	873,745	873,745	873,745	873,745	873,745	873,745	873,745	873,745	873,744	873,744	10,484,938	43,944,759	
	Annual % Toward Planned Net Savings (kWh)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	12%	
	Avg. Gross Savings Per Participant (kWh/yr)	20,071	-37	2,574	2,719	333	1,471	1,095	2,445	1,719	988	1,579	1,319	1,879	26,942	
	Avg. Gross Savings Per Square Foot (kWh/yr)	11	0	8	6	1	5	4	6	3	4	6	7	5	14	
	Avg. Net Savings Per Participant (kWh/yr)	16,057	-30	2,059	2,175	266	1,177	876	1,956	1,375	790	1,264	1,055	1,502.90	21,553	
	Avg. Net Savings Per Square Foot (kWh/yr)	8.7	-0.1	6.5	5.1	1.1	4.2	2.9	4.9	2.5	3.3	4.5	5.7	4	11	
Installed kW	Total Gross Demand Reduction (kW)	18.6	1.2	1.3	3.1	2.8	2.8	1.8	7.1	7.5	3.5	3.4	4.5	57.6	1,528.5	
	100% Realization Rate Adjustment (kW)	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	
	Realization Rate Adjusted Gross Demand Reduction (kW)	18.6	1.2	1.3	3.1	2.8	2.8	1.8	7.1	7.5	3.5	3.4	4.5	57.6	1,528.5	
	80% Net-To-Gross Adjustment (kW)	-3.7	-0.2	-0.3	-0.6	-0.6	-0.6	-0.4	-1.4	-1.5	-0.7	-0.7	-0.9	-11.5	-305.7	
	Net Adjusted Demand Reduction (kW)	14.9	1.0	1.0	2.5	2.2	2.2	1.3	5.7	6.0	2.8	2.7	3.6	46.1	1,222.8	
	Planned Net Demand Reduction (kW)	803.0	803.0	803.0	802.0	802.0	802.0	802.0	802.0	802.0	802.0	802.0	802.0	9,627.0	38,351.9	
	Annual % Toward Planned Net Reduction (kW)	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.4%	0.5%	0.5%	3%	
	Avg. Gross Demand Reduction Per Participant (kW)	6.2	0.1	0.6	0.8	0.2	0.5	0.6	0.8	0.7	0.3	0.6	0.3	0.6	6	
	Avg. Gross Demand Reduction Per Square Foot (kW)	0.003	0.000	0.002	0.002	0.001	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.003	
	Avg. Net Demand Reduction Per Participant (kW)	5.0	0.1	0.5	0.6	0.2	0.4	0.5	0.6	0.6	0.2	0.5	0.3	0.5	5	
	Avg. Net Demand Reduction Per Square Foot (kW)	0.003	0.000	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.002	0.001	0.001	0	
Program Performance	Annual \$Admin. per Participant (Gross)	\$519	\$278	\$322	\$322	\$282	\$291	\$303	\$291	\$270	\$243	\$245	\$229	\$229	\$327	
	Annual \$Admin. per kWh/year (Gross)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.12	\$0.01	
	Annual \$Admin. per kW (Gross)	\$84	\$182	\$228	\$252	\$323	\$362	\$384	\$368	\$345	\$347	\$355	\$362	\$362.0	\$52	
	Annual \$EM&V per \$Total	16%	22%	17%	13%	23%	25%	25%	26%	23%	22%	21%	22%	22%	20%	
	Annual \$Rebate per Participant (Gross)	\$1,565	\$563	\$524	\$490	\$375	\$353	\$346	\$334	\$341	\$317	\$308	\$285	\$285	\$1,208	

A.5 Virginia Non-residential Small Business Improvement Program 2016-2018

A.5.1 2016-2018 Annual Indicator Tables

VA- Small Business Improvement Program		2016	2017	2018	2016-2018
Category	Indicator	Total ²	Total	Total	Program Total
O&M (\$)	Direct Rebate				
O&M (\$)	Direct Implementation				
O&M (\$)	Direct EM&V				
O&M (\$)	Indirect Other (Administrative)	\$21,431	\$150,600	\$190,612	\$362,643
Capital (\$)	Direct Implementation	\$0	\$0	\$0	
Costs (\$)	Total				
Costs (\$)	Planned				
Costs (\$)	Variance				
	Annual % of Planned	30.6%	71.9%	51.5%	55.8%
Participants ¹	Total (Gross)	67	937	510	1,514
	Planned (Gross)	216	635	780	1,631
	Variance	-149	302	-270	-117
	Annual % of Planned (Gross)	31.0%	147.6%	65.4%	92.8%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	656,801	14,699,005	15,998,914	31,354,720
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	656,801	14,699,005	15,998,914	31,354,720
93%	Net-To-Gross Adjustment (kWh/yr)	-45,976	-1,028,930	-1,119,924	-2,194,830
	Net Adjusted Savings (kWh/yr)	610,825	13,670,074	14,878,990	29,159,889
	Planned Net Savings (kWh/yr)	1,255,549	4,323,476	5,760,927	11,339,952
	Annual % Toward Planned Net Savings (kWh)	48.7%	316.2%	258.3%	257.1%
	Avg. Gross Savings Per Participant (kWh/yr)	9,803	15,687	31,370	20,710
	Avg. Net Savings Per Participant (kWh/yr)	9,117	14,589	29,174	19,260
Installed kW	Total Gross Demand Reduction (kW)	131.5	3,098.0	3,475.7	6,705.3
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	131.5	3,098.0	3,475.7	6,705.3
93%	Net-To-Gross Adjustment (kW)	-9.2	-216.9	-243.3	-469.4
	Net Adjusted Demand Reduction (kW)	122.3	2,881.2	3,232.4	6,235.9
	Planned Net Demand Reduction (kW)	308.0	660.7	1,135.0	2,103.8
	Annual % Toward Planned Net Reduction (kW)	39.7%	436.1%	284.8%	296.4%
	Avg. Gross Demand Reduction Per Participant (kW)	2.0	3.3	6.8	4.4
	Avg. Net Demand Reduction Per Participant (kW)	1.8	3.1	6.3	4.1
Program Performance	Annual \$Admin. per Participant (Gross)	\$320	\$161	\$374	\$240
	Annual \$Admin. per kWh/year (Gross)	\$0.03	\$0.01	\$0.01	\$0.01
	Annual \$Admin. per kW (Gross)	\$163	\$49	\$54.84	\$54
	Annual \$EM&V per \$Total	6.5%	2.9%	3.3%	3%
	Annual \$Rebate per Participant (Gross)	\$1,364	\$2,686	\$4,180	\$3,131

1. A participant is a unique account number.
2. The 2016 total gross deemed savings values reported in this table differs from values in the May 1, 2017 EM&V report, and have been refiled with the Commission. The adjustments totaled -171,768 kWh/year and 3 kW for 2016 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017, in section 15. The adjustment was to waste heat factors (WHFe and WHFd) applied to lighting fixtures installed in 2016, where the program participant building HVAC systems was assumed to be heat pump heating and cooling systems, rather than the previous assumption of AC cool and non-electric heat systems. This adjustment was made in response to requests by the North Carolina Public Staff Utilities Commission Re: Docket No. E-22, Sub 545, on October 23, 2017. It is reflected in STEP Manual version 8.0.0 in this EM&V report.

A.5.2 2018 Monthly Indicator Tables

VA-Small Business Improvement Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2016-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$13,382	\$22,802	\$15,959	\$17,116	\$14,078	\$16,851	\$12,852	\$14,299	\$13,533	\$18,927	\$14,734	\$16,080	\$190,612	\$362,643	
Capital (\$)	Direct Implementation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	3.6%	9.8%	14.1%	18.7%	22.5%	27.1%	30.6%	34.4%	38.1%	43.2%	47.2%	51.5%	51.5%	55.8%	
Participants ¹	Total (Gross)	28	77	36	37	38	65	36	47	33	54	35	24	510	1,514	
	Planned (Gross)	65	65	65	65	65	65	65	65	65	65	65	65	780	1,631	
	Variance	-37	12	-29	-28	-27	0	-29	-18	-32	-11	-30	-41	-270	-117	
	Annual % of Planned (Gross)	3.6%	13.5%	18.1%	22.8%	27.7%	36.0%	40.6%	46.7%	50.9%	57.8%	62.3%	65.4%	65.4%	92.8%	
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	835,122	1,865,700	1,035,139	1,113,954	681,413	5,570,731	659,721	653,394	712,921	1,313,952	913,115	643,751	15,998,914	31,354,720	
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjustment (kWh/yr)															
	Realization Rate Adjusted Savings (kWh/yr)	835,122	1,865,700	1,035,139	1,113,954	681,413	5,570,731	659,721	653,394	712,921	1,313,952	913,115	643,751	15,998,914	31,354,720	
	93%	-58,459	-130,599	-72,460	-77,977	-47,699	-389,951	-46,180	-45,738	-49,904	-91,977	-63,918	-45,063	-1,119,924	-2,194,830	
	Net-To-Gross Adjustment (kWh/yr)															
	Net Adjusted Savings (kWh/yr)	776,664	1,735,101	962,679	1,035,977	633,714	5,180,780	613,540	607,657	663,017	1,221,975	849,197	598,689	14,878,990	29,159,889	
	Planned Net Savings (kWh/yr)	480,078	480,078	480,078	480,077	480,077	480,077	480,077	480,077	480,077	480,077	480,077	480,077	480,077	5,760,927	11,339,952
	Annual % Toward Planned Net Savings (kWh)	13.5%	43.6%	60.3%	78.3%	89.3%	179.2%	189.9%	200.4%	211.9%	233.1%	247.9%	258.3%	257.1%		
Avg. Gross Savings Per Participant (kWh/yr)	29,826	24,230	28,754	30,107	17,932	85,704	18,326	13,902	21,604	24,332	26,089	26,823	31,370	20,710		
Avg. Net Savings Per Participant (kWh/yr)	27,738	22,534	26,741	27,999	16,677	79,704	17,043	12,929	20,091	22,629	24,263	24,945	29,174	19,260		
Installed kW	Total Gross Demand Reduction (kW)	191.4	383.7	207.5	223.2	141.0	1,241.2	145.9	150.1	136.9	289.6	204.7	160.5	3,475.7	6,705.3	
	100%	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	
	Realization Rate Adjustment (kW)															
	Realization Rate Adjusted Gross Demand Reduction (kW)	191.4	383.7	207.5	223.2	141.0	1,241.2	145.9	150.1	136.9	289.6	204.7	160.5	3,475.7	6,705.3	
	93%	-13.4	-26.9	-14.5	-15.6	-9.9	-86.9	-10.2	-10.5	-9.6	-20.3	-14.3	-11.2	-243.3	-469.4	
	Net-To-Gross Adjustment (kW)															
	Net Adjusted Demand Reduction (kW)	178.0	356.9	192.9	207.6	131.1	1,154.3	135.7	139.6	127.3	269.3	190.3	149.3	3,232.4	6,235.9	
	Planned Net Demand Reduction (kW)	95.0	95.0	95.0	95.0	95.0	95.0	95.0	94.0	94.0	94.0	94.0	94.0	1,135.0	2,103.8	
	Annual % Toward Planned Net Reduction (kW)	15.7%	47.1%	64.1%	82.4%	94.0%	195.7%	207.6%	219.9%	231.1%	254.9%	271.6%	284.8%	284.8%	296.4%	
Avg. Gross Demand Reduction Per Participant (kW)	6.8	5.0	5.8	6.0	3.7	19.1	4.1	3.2	4.1	5.4	5.8	6.7	6.8	4.4		
Avg. Net Demand Reduction Per Participant (kW)	6.4	4.6	5.4	5.6	3.5	17.8	3.8	3.0	3.9	5.0	5.4	6.2	6.3	4.1		
Program Performance	Annual \$Admin. per Participant (Gross)	\$478	\$345	\$370	\$389	\$386	\$357	\$357	\$350	\$355	\$354	\$359	\$374	\$374	\$240	
	Annual \$Admin. per kWh/year (Gross)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.01	\$0.01	
	Annual \$Admin. per kW (Gross)	\$70	\$63	\$67	\$69	\$73	\$42	\$45	\$47	\$50	\$51	\$53	\$55	\$54.84	\$54	
	Annual \$EM&V per \$Total	2.7%	3.4%	2.4%	1.8%	3.8%	3.9%	3.6%	3.9%	3.6%	3.2%	3.2%	3.3%	3.3%	3%	
	Annual \$Rebate per Participant (Gross)	\$5,040	\$4,031	\$4,317	\$4,593	\$4,359	\$4,027	\$3,996	\$3,885	\$3,932	\$3,979	\$4,025	\$4,180	\$4,180	\$3,131	

A.6 Virginia Non-residential Prescriptive Program 2017-2018

A.6.1 2017-2018 Annual Indicator Tables

VA- Nonresidential Prescriptive Program		2017	2018	2017-2018
Category	Indicator	Total	Total	Program Total
O&M (\$)	Direct Rebate			
O&M (\$)	Direct Implementation			
O&M (\$)	Direct EM&V			
O&M (\$)	Indirect Other (Administrative)	\$28,898	\$381,096	\$409,994
Costs (\$)	Total			
Costs (\$)	Planned			
Costs (\$)	Variance			
	Annual % of Planned	20%	108%	75%
Participants ¹	Total (Gross)	4	865	869
	Planned (Gross)	266	427	693
	Variance	-262	438	176
	Annual % of Planned (Gross)	2%	203%	125%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	699	6,750,167	6,750,866
100%	Realization Rate Adjustment (kWh/yr)	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	699	6,750,167	6,750,866
85%	Net-To-Gross Adjustment (kWh/yr)	-105	-1,012,525	-1,012,630
	Net Adjusted Savings (kWh/yr)	594	5,737,642	5,738,236
	Planned Net Savings (kWh/yr)	5,959,948	26,839,364	32,799,312
	Annual % Toward Planned Net Savings (kWh)	0.01%	21%	17%
	Avg. Gross Savings Per Participant (kWh/yr)	175	7,804	7,769
	Avg. Net Savings Per Participant (kWh/yr)	149	6,633	6,603
Installed kW	Total Gross Demand Reduction (kW)	0.1	3,083.6	3,083.7
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	0.1	3,083.6	3,083.7
85%	Net-To-Gross Adjustment (kW)	0.0	-462.5	-462.6
	Net Adjusted Demand Reduction (kW)	0.1	2,621.1	2,621.1
	Planned Net Demand Reduction (kW)	0.0	4,296.0	4,296.0
	Annual % Toward Planned Net Reduction (kW)	N/A	61.0%	61.0%
	Avg. Gross Demand Reduction Per Participant (kW)	0.02	3.6	3.5
	Avg. Net Demand Reduction Per Participant (kW)	0.02	3.0	3.0
Program Performance	Annual \$Admin. per Participant (Gross)	\$7,225	\$441	\$472
	Annual \$Admin. per kWh/year (Gross)	\$41	\$0.06	\$0.06
	Annual \$Admin. per kW (Gross)	\$351,557	\$124	\$133
	Annual \$EM&V per \$Total	11%	2.0%	2.9%
	Annual \$Rebate per Participant (Gross)	\$157	\$5,315	\$5,291

1. A participant is a unique account number.

A.6.2 2018 Monthly Indicator Tables

VA-Nonresidential Prescriptive Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2017-2018
Category		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total	Program Total		
O&M (\$)	Direct Rebate																
O&M (\$)	Direct Implementation																
O&M (\$)	Direct RM&V																
O&M (\$)	Indirect Other (Administrative)	\$11,756	\$69,213	\$48,281	\$26,010	\$43,101	\$32,084	\$46,566	\$46,389	\$28,775	\$13,101	\$6,760	\$9,667	\$381,096	\$489,994		
Costs (\$)	Total																
Costs (\$)	Planned																
Costs (\$)	Variance																
	Annual % of Planned	3%	23%	17%	4%	56%	65%	79%	92%	100%	103%	103%	108%	108%	75%		
Participants ¹	Total (Gross)	49	181	115	56	125	100	64	47	83	11	21	15	865	869		
	Planned (Gross)	36	36	36	36	36	36	36	35	35	35	35	35	427	693		
	Variance	13	145	79	20	87	64	28	12	48	-24	-14	-20	438	176		
	Annual % of Planned (Gross)	11%	54%	81%	94%	125%	140%	161%	172%	192%	194%	199%	203%	203%	125%		
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	153,983	1,395,819	650,784	381,708	952,734	785,094	1,057,329	381,606	739,548	112,166	39,323	100,075	6,750,167	6,750,866		
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Realization Rate Adjusted Savings (kWh/yr)	153,983	1,395,819	650,784	381,708	952,734	785,094	1,057,329	381,606	739,548	112,166	39,323	100,075	6,750,167	6,750,866		
85%	Net-To-Gross Adjustment (kWh/yr)	-25,098	-209,573	-97,618	-57,256	-142,010	-117,764	-158,599	-57,241	-110,972	-16,825	-5,898	-15,011	-1,012,525	-1,012,630		
	Net Adjusted Savings (kWh/yr)	130,885	1,186,246	553,166	324,451	810,724	667,330	898,730	324,365	628,576	95,341	33,425	85,062	5,737,642	5,738,236		
	Planned Net Savings (kWh/yr)	2,236,614	2,236,614	2,236,614	2,236,614	2,236,614	2,236,614	2,236,614	2,236,614	2,236,613	2,236,613	2,236,613	2,236,613	26,839,364	32,799,312		
	Annual % Toward Planned Net Savings (kWh)	0%	5%	7%	8%	11%	14%	17%	18%	21%	21%	21%	21%	21%	17%		
	Avg. Gross Savings Per Participant (kWh/yr)	3,143	7,712	5,659	6,816	7,746	7,851	16,521	8,119	8,910	10,197	1,873	6,672	7,804	7,769		
	Avg. Net Savings Per Participant (kWh/yr)	2,671	6,555	4,810	5,794	6,584	6,673	14,043	6,901	7,574	8,667	1,592	5,671	6,633	6,603		
Installed kW	Total Gross Demand Reduction (kW)	23.2	366.4	193.1	105.9	176.0	122.3	246.6	163.0	145.4	44.5	3.8	21.5	3,083.7	3,083.7		
100%	Realization Rate Adjustment (kW)	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		
	Realization Rate Adjusted Gross Demand Reduction (kW)	23.2	366.4	193.1	105.9	176.0	122.3	246.6	163.0	145.4	44.5	3.8	21.5	3,083.7	3,083.7		
85%	Net-To-Gross Adjustment (kW)	-3.5	-55.0	-29.0	-15.9	-26.4	-18.3	-37.0	-24.2	-21.8	-6.7	-0.6	-3.2	-462.5	-462.6		
	Net Adjusted Demand Reduction (kW)	19.7	311.4	164.1	90.0	149.6	104.0	209.6	138.7	123.6	37.9	3.2	18.3	2,621.1	2,621.1		
	Planned Net Demand Reduction (kW)	358.0	358.0	358.0	358.0	358.0	358.0	358.0	358.0	358.0	358.0	358.0	358.0	4,256.0	4,256.0		
	Annual % Toward Planned Net Reduction (kW)	0.5%	7.7%	11.5%	13.6%	17.1%	19.5%	24.4%	56.8%	59.6%	60.5%	60.6%	61.0%	61.0%	61.0%		
	Avg. Gross Demand Reduction Per Participant (kW)	0.5	2.0	1.7	1.9	1.4	1.2	3.9	34.8	1.8	4.0	0.2	1.4	3.6	3.5		
	Avg. Net Demand Reduction Per Participant (kW)	0.4	1.7	1.4	1.6	1.2	1.0	3.3	29.6	1.5	3.4	0.2	1.2	3.0	3.0		
Program Performance	Annual \$Admin. per Participant (Gross)	\$240	\$352	\$375	\$387	\$379	\$369	\$403	\$440	\$430	\$440	\$437	\$441	\$441	\$472		
	Annual \$Admin. per kWh/year (Gross)	\$0.08	\$0.05	\$0.06	\$0.06	\$0.06	\$0.05	\$0.05	\$0.05	\$0.05	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06		
	Annual \$Admin. per kW (Gross)	\$508	\$208	\$222	\$225	\$229	\$234	\$225	\$113	\$117	\$119	\$121	\$124	\$124	\$133		
	Annual \$RM&V per \$ Total	1.2%	0.8%	0.9%	0.4%	1.3%	1.3%	1.4%	2.1%	1.9%	1.8%	1.8%	2.0%	2.0%	2.9%		
	Annual \$Rebate per Participant (Gross)	\$1,727	\$4,668	\$4,915	\$4,956	\$4,852	\$4,625	\$5,099	\$5,583	\$5,428	\$5,463	\$5,350	\$5,315	\$5,315	\$5,291		

A.7 Virginia Residential Air Conditioner Cycling Program 2010-2018

A.7.1 2010-2018 Annual Indicator Tables

VA - Residential AC Cycling Program		2010	2011	2012	2013	2014	2015	2016	2017	2018	2010-2018
Category	Indicator	Total	Total	Total	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate										
O&M (\$)	Direct Implementation										
O&M (\$)	Direct EM&V										
O&M (\$)	Indirect Other (Administrative)	\$872,470	\$763,964	\$681,876	\$668,850	\$301,103	\$196,693	\$186,752	\$238,408	\$333,382	\$4,243,496
Capital (\$)	Direct Implementation										
Costs (\$)	Total										
Costs (\$)	Planned										
Costs (\$)	Variance										
	Cum. % toward planned total	77%	96%	64%	73%	83%	84%	69%	65%	70%	75%
Participants	Total (Cumulative @ End of Month)	10,900	36,545	66,890	91,280	115,083	140,022	147,723	149,219	151,798	151,798
	Removals (Uninstalled) / Deactivations	-90	-2,606	-5,516	-12,370	-23,145	-36,769	-49,635	-59,937	-71,171	-71,171
	Opt-outs	98	309	18	16	18	93	353	30	27	418
	Adjusted Participants (Cum.)	10,712	33,630	61,356	78,894	91,920	103,160	98,088	89,282	80,627	80,209
0%	Net to gross adjustment (Cum.)	0	0	0	0	0	0	0	0	0	0
96%	In Service Rate Adjustment (Cum.)	-436	-1,462	-2,454	-3,156	-3,677	0	0	0	0	0
	Net Participation (Cum.)	10,276	32,168	58,901	75,738	88,243	103,160	98,088	89,282	80,627	80,209
	Planned (Cum.)	9,244	33,996	73,598	96,706	115,702	103,915	103,253	97,037	90,267	90,267
	Variance (Cum.)	1,032	-1,828	-14,695	-20,968	-27,459	-755	-5,165	-7,755	-9,640	-10,058
	Cum % toward planned total (Net basis)	111%	95%	80%	78%	76%	99%	95%	92%	89%	89%
	Removal (Uninstalled) / Deactivation Rate	-0.22%	-0.82%	-0.48%	-0.81%	-1.02%	-1.15%	-1.05%	-0.92%	-1.11%	-0.87%
	Average % Opt-outs (rate)	0.91%	0.91%	0.03%	0.02%	0.02%	0.09%	0.36%	0.03%	0.03%	0.19%
	Realization Rate	96%	111%	99%	78%	93%	100%	100%	100%	100%	98%
	Connected Load kW	17,841	92,798	208,834	264,998	296,859	304,177	291,199	267,857	247,443	230,635
	Ex-Ante Estimated kW	0.94	0.96	1.09	0.95	0.78	0.71	0.97	0.68	0.63	0.86%
	Connected Load Per Participant (kW)	1.74	2.88	3.55	3.50	3.36	2.95	2.97	3.00	3.07	3.00
kW Potential	Peak Shaving Potential kW - Gross Participants	11,990.0	40,199.5	73,579.0	100,408.0	80,558.1	99,415.6	143,291.3	101,468.9	95,236.4	95,236.4
	Removed (Uninstalled) / Deactivated Peak Shaving Potential kW	-99.0	-2,866.6	-6,067.6	-13,607.0	-16,201.5	-26,106.0	-48,146.0	-40,757.2	-44,651.9	-44,651.9
	Less Opt-outs (kW)	108.2	339.7	20.3	17.4	12.9	66.0	342.5	20.6	17.2	261.9
	Dispatchable Peak Shaving Potential - Total kW	11,782.8	36,993.2	67,491.1	86,783.6	64,343.7	73,243.7	94,802.8	60,691.1	50,567.3	50,322.6
0%	Less Free Ridership Factor (Cum.)	0	0	0	0	0	0	0	0	0	0
96%	In Service Rate Adjustment (Cum.)	-471	-1,480	-2,700	-3,471	-2,574	0	0	0	0	0
	Adjustment for Realization Rate	-430	3,906	-389	-18,195	-4,633	0	0	0	0	0
	Net Demand (Cum.)	10,880	39,420	64,403	65,117	57,137	73,244	94,803	60,691	50,567	50,323
	Planned Demand (Cum.)	8,782	32,293	69,786	91,774	110,390	103,915	73,838	95,027	61,419	61,419
	Cum. % toward planned total (Net basis)	124%	122%	92%	71%	52%	69%	128%	64%	82%	82%
	Dispatchable Peak Shaving Potential kW per Participant	1.06	31.79	1.05	0.83	0.69	0.71	0.97	0.68	0.63	0.63
Program Performance	Cum. \$Admin. per Cum. Participant	\$80	\$45	\$22	\$33	\$29	\$25	\$25	\$26	\$28	\$28
	Cum. \$Admin. per Cum. Gross kW	\$73	\$41	\$20	\$30	\$41	\$40	\$26	\$37	\$43	\$43
	Cum. \$EM&V per Cum. \$Total	1%	1%	1%	1%	2%	1%	2%	2%	2%	2%
	Cum. \$Rebate per Cum. Participant	\$16	\$37	\$52	\$70	\$86	\$99	\$118	\$141	\$159	\$159

A.7.2 2018 Monthly Indicator Tables

VA - Residential AC Cycling Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2010-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$11,934	\$9,739	\$10,142	\$10,084	\$11,533	\$64,972	\$64,737	\$63,721	\$61,373	\$10,309	\$866	\$13,971	\$333,382	\$4,243,496	
Capital (\$)	Direct Implementation															
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
Costs (\$)	Cum. % toward planned total	3%	5%	7%	9%	12%	25%	38%	52%	64%	66%	67%	70%	70%	75%	
Participants	Total (Cumulative @ End of Month)	149,449	149,667	149,776	149,846	150,285	150,607	150,770	151,129	151,222	151,361	151,611	151,798	151,798	151,798	
	Removals (Uninstalled) / Deactivations	-60,514	-61,041	-61,457	-62,725	-63,489	-65,385	-66,815	-68,109	-69,211	-69,892	-70,629	-71,171	-71,171	-71,171	
	Opt-outs	30	30	30	30	30	30	29	28	28	28	28	27	27	418	
	Adjusted Participants (Cum.)	88,935	88,626	88,319	87,121	86,796	85,222	83,955	83,020	82,011	81,469	80,982	80,627	80,627	80,209	
	0% Net to gross adjustment (Cum.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	96% In Service Rate Adjustment (Cum.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Net Participation (Cum.)	88,935	88,626	88,319	87,121	86,796	85,222	83,955	83,020	82,011	81,469	80,982	80,627	80,627	80,209	
	Planned (Cum.)	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	90,267	
	Variance (Cum.)	-1,332	-1,641	-1,948	-3,146	-3,471	-5,045	-6,312	-7,247	-8,256	-8,798	-9,285	-9,640	-9,640	-10,058	
	Cum. % toward planned total (Net basis)	99%	98%	98%	97%	97%	94%	93%	92%	91%	90%	90%	89%	89%	89%	
	Removal (Uninstalled) / Deactivation Rate	-0.65%	-0.59%	-0.47%	-1.46%	-0.88%	-2.22%	-1.70%	-1.56%	-1.34%	-0.84%	-0.91%	-0.67%	-1.11%	-0.87%	
	Average % Opt-outs (rate)	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.19%	
	Realization Rate	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	
	Connected Load kW	257,753	257,881	254,998	253,405	250,036	247,223	244,494	242,943	241,408	240,188	239,793	239,199	247,443	230,635	
	Ex-Ante Estimated kW	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	
Connected Load Per Participant (kW)	2.90	2.91	2.89	2.91	2.88	2.90	2.91	2.93	2.94	2.95	2.96	2.97	3.07	3.00		
kW Potential	Peak Shaving Potential kW - Gross Participants	93,762.7	93,899.4	93,967.8	94,011.7	94,287.2	94,489.2	94,591.4	94,816.7	94,875.0	94,962.2	95,119.1	95,236.4	95,236.4	95,236.4	
	Removed (Uninstalled) / Deactivated Peak Shaving Potential kW	-37,965.8	-38,296.5	-38,557.4	-39,353.0	-39,832.3	-41,021.8	-41,919.0	-42,730.8	-43,422.2	-43,849.5	-44,311.9	-44,651.9	-44,651.9	-44,651.9	
	Less Opt-outs (kW)	19.0	18.9	18.8	18.6	18.5	18.2	17.9	17.7	17.5	17.4	17.3	17.2	17.2	261.9	
	Dispatchable Peak Shaving Potential - Total kW	55,777.9	55,584.1	55,391.5	54,640.2	54,436.3	53,449.2	52,654.5	52,068.1	51,435.3	51,095.4	50,789.9	50,567.3	50,567.3	50,322.6	
	0% Less Free Ridership Factor (Cum.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	96% In Service Rate Adjustment (Cum.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Adjustment for Realization Rate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Net Demand (Cum.)	55,778	55,584	55,392	54,640	54,436	53,449	52,655	52,068	51,435	51,095	50,790	50,567	50,567	50,323	
	Planned Demand (Cum.)	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	61,419	
	Cum. % toward planned total (Net basis)	91%	90%	90%	89%	89%	87%	86%	85%	84%	83%	83%	82%	82%	82%	
	Dispatchable Peak Shaving Potential kW per Participant	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	
	Program Performance	Cum. \$Admin. per Cum. Participant	\$26	\$26	\$26	\$26	\$26	\$27	\$27	\$28	\$28	\$28	\$28	\$28	\$28	\$28
		Cum. \$Admin. per Cum. Gross kW	\$40	\$40	\$40	\$40	\$40	\$41	\$41	\$42	\$42	\$43	\$43	\$43	\$43	\$43
		Cum. SEM&V per Cum. \$Total	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		Cum. \$Rebate per Cum. Participant	\$140	\$140	\$140	\$140	\$140	\$145	\$151	\$156	\$161	\$161	\$160	\$159	\$159	\$159

A.8 Virginia Non-residential Distributed Generation Program 2012-2018

A.8.1 2012-2018 Annual Indicator Tables

VA - Non-Residential Distributed Generation Program		2012	2013	2014	2015	2016	2017	2018	2012 - 2018
Category	Indicator	Total	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate								
O&M (\$)	Direct Implementation								
O&M (\$)	Direct EM&V								
O&M (\$)	Indirect Other (Administrative)	\$45,196	\$70,742	\$55,136	\$14,914	\$17,395	\$20,476	\$31,507	\$255,366
Capital (\$)	Direct Implementation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Costs (\$)	Total								
Costs (\$)	Planned								
Costs (\$)	Variance								
	Cum. % toward planned total	21%	29%	55%	57%	67%	77%	64%	45%
Participants ¹	Total (Cumulative @ End of Month)	19.0	19.4	18.6	5.9	6.5	6.1	6.1	6.1
	Planned (Cum.)	23.0	28.0	35.0	13.0	7.0	7.4	8.1	8.1
	Variance (Cum.)	-4.0	-8.6	-16.4	-7.1	-0.5	-1.3	-2.0	-2.0
	Cum % Toward Planned Total (Net basis)	83%	69%	53%	45%	93%	82%	75%	75%
kW Potential	Total (Cumulative @ End of Month)	19,040	19,410	18,580	5,875	5,740	5,548	6,130	6,130
	Realization Rate	70%	77%	78%	93%	106%	108%	97%	97%
	Adjustment for Realization Rate	-2,989	-3,300	-4,088	-411	344	444	-184	-184
	Net kW (Cum.)	16,051	16,110	14,492	5,457	4,348	5,992	5,946	5,946
	Planned (Cum.)	23,000	28,000	35,000	13,000	7,000	7,394	8,149	8,149
	Cum % Toward Planned Total (Net basis)	70%	58%	41%	42%	62%	86%	73%	73%
	Avg. per Net Participant (Net kW)	843	830	780	929	669	982	970	858
Program Performance	Annual Cum. \$Admin. per Cum. Participant	\$2,374	\$5,973	\$9,207	\$9,294	\$9,589	\$3,357	\$5,140	\$5,140
	Annual Cum. \$Admin. per Cum. Gross kW	\$2	\$6	\$9	\$9	\$10	\$3	\$5	\$5
	Cum. \$EM&V per Cum. \$Total	3.3%	7.5%	8.8%	9.5%	11.6%	12.5%	13.3%	13.3%
	Cum. \$Rebate per Cum. Participant	\$21,366	\$47,494	\$99,549	\$376,393	\$418,435	\$513,179	\$577,089	\$577,089

1. A participant is equal to one megawatt (MW) available to Dominion for dispatch through the Commercial Distributed Generation program.

A.8.2 2018 Monthly Indicator Tables

VA - Non-Residential Distributed Generation Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2012 - 2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total
O&M (\$)	Direct Rebate														
O&M (\$)	Direct Implementation														
O&M (\$)	Direct EM&V														
O&M (\$)	Indirect Other (Administrative)	\$1,676	\$1,618	\$2,203	\$1,793	\$3,588	\$2,708	\$4,236	\$2,591	\$1,290	\$3,780	\$2,320	\$3,705	\$31,507	\$255,366
Capital (\$)	Direct Implementation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Costs (\$)	Total														
Costs (\$)	Planned														
Costs (\$)	Variance														
	Cum. % toward planned total	3%	7%	11%	15%	22%	28%	36%	41%	44%	52%	56%	64%	64%	45%
Participants ¹	Total (Cumulative @ End of Month)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
	Planned (Cum.)	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
	Variance (Cum.)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
	Cum % Toward Planned Total (Net basis)	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
kW Potential	Total (Cumulative @ End of Month)	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130	6,130
	Realization Rate	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%
	Adjustment for Realization Rate	-184	-184	-184	-184	-184	-184	-184	-184	-184	-184	-184	-184	-184	-184
	Net kW (Cum.)	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946	5,946
	Planned (Cum.)	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149	8,149
	Cum % Toward Planned Total (Net basis)	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%
	Avg. per Net Participant (Net kW)	970	970	970	970	970	970	970	970	970	970	970	970	970	858
Program Performance	Annual Cum. \$Admin. per Cum. Participant	\$273	\$537	\$897	\$1,189	\$1,775	\$2,216	\$2,907	\$3,330	\$3,540	\$4,157	\$4,535	\$5,140	\$5,140	\$5,140
	Annual Cum. \$Admin. per Cum. Gross kW	\$0	\$1	\$1	\$1	\$2	\$2	\$3	\$3	\$4	\$4	\$5	\$5	\$5	\$5
	Cum. SEM&V per Cum. \$Total	12.5%	12.6%	12.5%	12.4%	12.9%	13.0%	12.9%	12.9%	12.9%	12.8%	12.8%	13.3%	13.3%	13.3%
	Cum. \$Rebate per Cum. Participant	\$514,334	\$517,630	\$523,407	\$527,984	\$532,687	\$538,348	\$548,800	\$554,653	\$558,021	\$567,556	\$572,640	\$577,089	\$577,089	\$577,089

A.9 Virginia Residential Lighting Program 2010-2012¹

VA- Residential Lighting Program		2010	2011	2012	2010-2012
Category	Indicator	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate				
O&M (\$)	Direct Implementation				
O&M (\$)	Direct EM&V				
O&M (\$)	Indirect Other (Administrative)	\$857,229	\$297,373	\$3,259	\$1,157,861
Costs (\$)	Total				
Costs (\$)	Planned				
Costs (\$)	Variance				
	Cum. % toward planned total	66.9%	86.9%	64.0%	75.6%
Participants	Total bulbs (Gross)	2,016,479	2,206,030	0	4,222,509
	Planned (Gross)	2,013,600	2,001,784	0	4,015,384
	Variance	2,879	204,246	0	207,125
	Cum % toward planned total (Gross)	100.1%	110.2%	0.0%	105.2%
kWh	Total Gross Deemed Savings	101,640,578	116,730,747	0	218,371,325
84%	Realization Rate Adjustment	-16,262,492	-18,676,920	0	-34,939,412
	Adjusted Gross Savings	85,378,086	98,053,827	0	183,431,913
65%	Net-To-Gross Adjustment	-29,882,330	-34,318,840	0	-64,201,170
	Net Adjusted Savings	55,495,756	63,734,988	0	119,230,743
	Planned Savings (Net)	53,544,280	53,229,979	0	106,774,259
	Cum. % Toward Planned Savings (Net)	103.6%	119.7%	0.0%	111.7%
	Avg. Savings Per Participant (Net)	28	29	0	28
kW	Total Gross Deemed Demand	11,056	12,700	0	23,756
84%	Realization Rate Adjustment	-1,769	-2,032	0	-3,801
	Adjusted Gross Demand	9,287	10,668	0	19,955
65%	Net-To-Gross Adjustment	-3,250	-3,734	0	-6,984
	Net Adjusted Demand	6,037	6,934	0	12,971
	Planned Demand (Net)	4,685	4,657	0	9,342
	Cum. % Toward Planned Demand (Net)	128.8%	148.9%	0.0%	138.8%
	Avg. Demand Per Participant (Net)	0.003	0.003	0.000	0.003
Program Performance	Cum. \$Admin. per Cum. Bulb (Gross)	\$0.4	\$0.1		\$0.3
	Cum. \$Admin. per Cum. kWh (Gross)	\$0.008	\$0.00		\$0.005
	Cum. \$Admin. per Cum. kW (Gross)	\$78	\$23		\$49
	Cum. \$EM&V per Cum Total Costs (\$)	0.7%	3.5%	89.1%	2.6%
	Cum. \$Rebate per Cum. Bulb (Gross)	\$0.78	\$1.00		\$0.90

A.10 Virginia Residential Low-income Program 2010 - 2014²

VA- Residential Low-income Program		2010*	2011*	2012	2013	2014	2010-2014
Category	Indicator	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate						
O&M (\$)	Direct Implementation						
O&M (\$)	Direct EM&V						
O&M (\$)	Indirect Other (Administrative)	\$825,883	\$386,039	\$388,331	\$273,011	\$126,173	\$1,999,436
Capital (\$)							
Costs (\$)	Total	\$2,698,543	\$4,799,288	\$3,363,405	\$2,600,289	\$2,432,463	\$15,893,988
Costs (\$)	Planned	\$3,409,892	\$6,679,625	\$10,513,733	\$3,566,022	\$2,975,592	\$27,144,863
Costs (\$)	Variance	-\$711,349	-\$1,880,337	-\$7,150,328	-\$965,733	-\$543,128	-\$11,250,875
	Cum. % toward planned total	79.1%	71.8%	32.0%	72.9%	81.7%	58.6%
Participants	Total (Gross)	1,431	3,913	2,380	1,883	1,880	11,487
	Planned (Gross)	1,414	3,789	6,062	2,467	1,872	15,604
	Variance	17	124	-3,682	-584	8	-4,117
	Cum % toward planned total (Gross)	101.2%	103.3%	39.3%	76.3%	100.4%	73.6%
Installed kWh/year	Total Gross Deemed Savings	1,743,349	4,490,516	2,596,580	1,668,643	1,740,993	12,240,081
62%	Realization Rate Adjustment	-923,975	-2,379,974	-1,376,187	-417,161	-661,577	-5,758,874
	Adjusted Gross Savings	819,374	2,110,543	1,220,392	1,251,482	1,079,416	6,481,207
93.6%	Net-To-Gross Adjustment	-52,440	-135,075	-78,105	-80,095	-69,083	-414,797
	Net Adjusted Savings	766,934	1,975,468	1,142,287	1,171,388	1,010,333	6,066,410
	Planned Savings (Net)	554,704	554,704	554,704	554,704	1,560,401	3,779,217
	Cum. % Toward Planned Savings (Net)	138.3%	356.1%	205.9%	211.2%	64.7%	160.5%
	Avg. Savings Per Participant (Net)	536	505	480	622	537	528
Installed kW	Total Gross Deemed Demand	691	1,443	508	346	336	3,323
62%	Realization Rate Adjustment	-366.4	-764.7	-269.3	-86.4	-127.6	-1,614
	Adjusted Gross Demand	325	678	239	259	208	1,709
93.6%	Net-To-Gross Adjustment	-21	-43	-15	-17	-13	-109
	Net Adjusted Demand	304	635	223	243	195	1,600
	Planned (Net)	102	274	436	396	246	1,454
	Cum. % toward planned total (Net)	298.1%	231.6%	51.3%	61.3%	79.3%	110.1%
	Avg. per Participant (Net)	0.0	0.2	0.1	0.1	0.1	0.1
Program Performance	Cum. \$Admin. per Cum. Participant (Gross)	\$577	\$99	\$163	\$145	\$67	\$174
	Cum. \$Admin. per Cum. kWh (Gross)	\$0.5	\$0.1	\$0.1	\$0.2	\$0.1	\$0.2
	Cum. \$Admin. per Cum. kW (Gross)	\$1,195	\$268	\$764	\$790	\$376	\$602
	Cum. SEM&V per Cum Total Costs (\$)	1.0%	3.2%	3.2%	4.0%	3.4%	3.0%
	Cum. \$Rebate per Cum. Participant (Gross)	\$1,086	\$1,019	\$1,065	\$1,016	\$951	\$1,025.22

² Program closed September 9, 2014.

A.11 Virginia Residential Heat Pump Upgrade Program 2012-2017³

VA - Residential Heat Pump Upgrade Program		2012	2013	2014	2015	2016	2017	2012 - 2017
Category	Indicator	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$126,049	\$202,451	\$101,388	\$76,038	\$78,750	\$29,454	\$614,131
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	52%	50%	36%	43%	41%	142%	45%
Participants ¹	Total (Gross)	86	3,295	3,649	4,210	5,395	1,149	17,784
	Planned (Gross)	4,396	11,992	18,221	18,221	3,748	0	56,578
	Variance	-4,310	-8,697	-14,572	-14,011	1,647	1,149	-38,794
	Annual % of Planned (Gross)	2%	27%	20%	23%	144%		31%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	199,447	6,665,695	5,667,002	2,405,953	3,072,240	553,935	18,564,272
78%	Realization Rate Adjustment (kWh/yr)	13,363	446,602	379,689	-538,933	-688,182	-124,081	-511,543
	Realization Rate Adjusted Savings (kWh/yr)	212,810	7,112,296	6,046,691	1,867,020	2,384,058	429,854	18,052,729
45%	Net-To-Gross Adjustment (kWh/yr)	-31,922	-1,066,844	-907,004	-1,024,994	-1,308,848	-235,990	-4,575,601
	Net Adjusted Savings (kWh/yr)	180,889	6,045,452	5,139,687	842,026	1,075,210	193,864	13,477,128
	Planned Net Savings (kWh/yr)	3,207,000	8,724,528	15,761,165	15,761,165	742,316	0	44,196,174
	Annual % Toward Planned Net Savings (kWh)	6%	69%	33%	5%	145%		30%
	Avg. Gross Savings Per Participant (kWh/yr)	2,319	2,023	1,553	571	569	482	1,044
	Avg. Net Savings Per Participant (kWh/yr)	2,103	1,835	1,409	200	199	169	758
Installed kW	Total Gross Demand Reduction (kW)	59	2,394	2,169	472	624	130	5,848
89%	Realization Rate Adjustment (kW)	-10	-405	-367	-53	-70	-15	-918
	Realization Rate Adjusted Gross Demand Reduction (kW)	49	1,989	1,802	419	554	115	4,930
45%	Net-To-Gross Adjustment (kW)	-7	-298	-270	-230	-304	-63	-1,174
	Net Adjusted Demand Reduction (kW)	42	1,691	1,532	189	250	52	3,756
	Planned Net Demand Reduction (kW)	1,068	2,904	5,284	5,284	267	0	14,807
	Annual % Toward Planned Net Reduction (kW)	4%	58%	29%	4%	94%		25%
	Avg. Gross Demand Reduction Per Participant (kW)	0.69	0.73	0.59	0.11	0.12	0.11	0.33
	Avg. Net Demand Reduction Per Participant (kW)	0.49	0.51	0.42	0.04	0.05	0.05	0.21
Program Performance	Annual \$Admin. per Participant (Gross)	\$1,466	\$61	\$28	\$18	\$15	\$26	\$35
	Annual \$Admin. per kWh/year (Gross)	\$0.63	\$0.03	\$0.02	\$0.03	\$0.03	\$0.05	\$0.03
	Annual \$Admin. per kW (Gross)	\$2,125	\$85	\$47	\$161	\$126	\$227	\$105
	Annual \$EM&V per \$Total	1.6%	15.1%	13.5%	18.5%	11.0%	18.8%	13.4%
	Annual \$Rebate per Participant (Gross)	\$219	\$218	\$217	\$219	\$218	\$218	\$218

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.

³ Program closed end of 2017.

A.12 Virginia Residential Heat Pump Tune-Up Program 2012-2017⁴

VA - Residential Heat Pump Tune Up Program		2012	2013	2014	2015	2016	2017	2012 - 2017
Category	Indicator	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$179,541	\$339,952	\$229,172	\$124,325	\$103,917	\$26,250	\$1,003,156
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	60%	69%	73%	60%	50%	79%	62%
Participants ¹	Total (Gross)	1,209	15,636	24,687	24,114	19,008	2,472	87,126
	Planned (Gross)	10,203	27,830	42,293	42,293	22,958	0	145,577
	Variance	-8,994	-12,194	-17,606	-18,179	-3,950	2,472	-58,451
	Annual % of Planned (Gross)	12%	56%	58%	57%	83%		60%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	364,856	4,605,801	6,269,989	5,067,124	4,035,338	500,799	20,843,906
99%	Realization Rate Adjustment (kWh/yr)	-2,919	-36,846	-50,160	-40,537	-32,283	-4,006	-166,751
	Realization Rate Adjusted Savings (kWh/yr)	361,937	4,568,954	6,219,829	5,026,587	4,003,055	496,793	20,677,155
90%	Net-To-Gross Adjustment (kWh/yr)	-36,194	-456,895	-621,983	-502,659	-400,306	-49,679	-2,067,715
	Net Adjusted Savings (kWh/yr)	325,743	4,112,059	5,597,846	4,523,928	3,602,750	447,114	18,609,439
	Planned Net Savings (kWh/yr)	7,024,000	19,102,880	32,227,266	32,227,266	2,595,483	0	93,176,895
	Annual % Toward Planned Net Savings (kWh)	5%	22%	17%	14%	139%		20%
	Avg. Gross Savings Per Participant (kWh/yr)	302	295	254	210	212	203	239
	Avg. Net Savings Per Participant (kWh/yr)	269	263	227	188	190	181	214
Installed kW	Total Gross Demand Reduction (kW)	250	3,160	3,198	5,435	3,003	391	15,437
99%	Realization Rate Adjustment (kW)	-2	-25	-26	-43	-24	-3	-123
	Realization Rate Adjusted Gross Demand Reduction (kW)	248	3,135	3,173	5,392	2,979	387	15,313
90%	Net-To-Gross Adjustment (kW)	-25	-314	-317	-539	-298	-39	-1,531
	Net Adjusted Demand Reduction (kW)	223	2,822	2,855	4,852	2,681	349	13,782
	Planned Net Demand Reduction (kW)	2,053	5,585	9,727	9,727	869	0	27,962
	Annual % Toward Planned Net Reduction (kW)	11%	51%	29%	50%	309%		49%
	Avg. Gross Demand Reduction Per Participant (kW)	0.21	0.20	0.13	0.23	0.16	0.16	0.18
	Avg. Net Demand Reduction Per Participant (kW)	0.18	0.18	0.12	0.20	0.14	0.14	0.16
Program Performance	Annual \$Admin. per Participant (Gross)	\$149	\$22	\$9	\$5	\$5	\$11	\$12
	Annual \$Admin. per kWh/year (Gross)	\$0.49	\$0.07	\$0.04	\$0.02	\$0.03	\$0.05	\$0.05
	Annual \$Admin. per kW (Gross)	\$719	\$108	\$72	\$23	\$35	\$67	\$65
	Annual SEM&V per \$Total	1%	3%	2%	2%	3%	10%	3%
	Annual \$Rebate per Participant (Gross)	\$90	\$90	\$90	\$90	\$91	\$90	\$90

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.

⁴ Program closed end of 2017.

A.13 Virginia Residential Duct Sealing Program 2012-2017⁵

VA - Residential Duct Sealing Program		2012	2013	2014	2015	2016	2017	2012 - 2017
Category	Indicator	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$107,619	\$88,535	\$47,393	\$29,028	\$21,206	\$12,428	\$306,208
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	83%	57%	57%	56%	40%	109.9%	58.4%
Participants ¹	Total (Gross)	8	108	401	1,860	658	264	3,299
	Planned (Gross)	1,267	3,456	5,249	5,249	1,499	0	16,720
	Variance	-1,259	-3,348	-4,848	-3,389	-841	264	-13,421
	Annual % of Planned (Gross)	1%	3%	8%	35%	44%		19.7%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	10,093	120,772	264,570	1,024,299	369,325	145,638	1,934,698
	49% Realization Rate Adjustment (kWh/yr)	-5,107	-61,111	-133,872	-518,295	-186,879	-73,693	-978,957
	Realization Rate Adjusted Savings (kWh/yr)	4,986	59,661	130,697	506,004	182,447	71,945	955,741
	80% Net-To-Gross Adjustment (kWh/yr)	-997	-11,932	-26,139	-101,201	-36,489	-14,389	-191,148
	Net Adjusted Savings (kWh/yr)	3,989	47,729	104,558	404,803	145,957	57,556	764,592
	Planned Net Savings (kWh/yr)	533,000	1,449,268	2,750,476	2,750,476	178,861	0	7,662,081
	Annual % Toward Planned Net Savings (kWh)	1%	3%	4%	15%	82%		10%
	Avg. Gross Savings Per Participant (kWh/yr)	1,262	1,118	660	551	561	552	586
	Avg. Net Savings Per Participant (kWh/yr)	499	442	261	218	222	218	232
Installed kW	Total Gross Demand Reduction (kW)	12	138	217	839	302	119	1,627
	43% Realization Rate Adjustment (kW)	-7	-79	-125	-483	-174	-69	-936
	Realization Rate Adjusted Gross Demand Reduction(kW)	5	59	92	357	129	51	692
	80% Net-To-Gross Adjustment (kW)	-1	-12	-18	-71	-26	-10	-138
	Net Adjusted Demand Reduction (kW)	4	47	74	285	103	41	553
	Planned Net Demand Reduction (kW)	330	898	1,732	1,732	60	0	4,752
	Annual % Toward Planned Net Reduction (kW)	1%	5%	4%	16%	172%		12%
	Avg. Gross Demand Reduction Per Participant (kW)	1.45	1.28	0.54	0.45	0.46	0.45	0.49
	Avg. Net Demand Reduction Per Participant (kW)	0.49	0.43	0.18	0.15	0.16	0.15	0.17
Program Performance	Annual \$Admin. per Participant (Gross)	\$13,452	\$820	\$118	\$16	\$32	\$47	\$93
	Annual \$Admin. per kWh/year (Gross)	\$10.66	\$0.7	\$0.2	\$0.03	\$0.06	\$0.09	\$0.16
	Annual \$Admin. per kW (Gross)	\$9,287	\$642	\$219	\$97	\$70	\$104	\$188
	Annual \$EM&V per \$Total	2.1%	13.5%	18.6%	15.0%	15.4%	21.1%	12.0%
	Annual \$Rebate per Participant (Gross)	\$125	\$125	\$133	\$126	\$125	\$125	\$125

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.

⁵ Program closed end of 2017.

A.14 Virginia Residential Home Energy Check-Up Program 2012-2017⁶

VA - Residential Home Energy Check-Up Program		2012	2013	2014	2015	2016	2017	2012 - 2017
Category	Indicator	Total	Total	Total	Total	Total	Total ²	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$45,900	\$107,979	\$302,076	\$142,892	\$152,251	\$27,969	\$779,066
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	67%	99%	506%	326%	343%	75%	269%
Participants ¹	Total (Gross)	31	1,569	19,702	13,860	15,252	1,500	51,914
	Planned (Gross)	602	1,605	2,427	2,427	2,427	0	9,488
	Variance	-571	-36	17,275	11,433	12,825	1,500	42,426
	Annual % of Planned (Gross)	5%	98%	812%	571%	628%		547%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	24,484	1,156,888	10,573,042	6,834,001	6,803,477	827,576	26,219,469
154%	Realization Rate Adjustment (kWh/yr)	13,099	618,935	5,656,578	3,656,191	3,639,860	442,753	14,027,416
	Realization Rate Adjusted Savings (kWh/yr)	37,583	1,775,823	16,229,620	10,490,192	10,443,338	1,270,330	40,246,885
82%	Net-To-Gross Adjustment (kWh/yr)	-7,517	-355,165	-3,245,924	-1,898,725	-1,890,244	-229,930	-7,627,504
	Net Adjusted Savings (kWh/yr)	30,066	1,420,658	12,983,696	8,591,467	8,553,094	1,040,400	32,619,381
	Planned Net Savings (kWh/yr)	492,000	1,306,356	2,468,259	2,468,259	4,593,678	0	11,328,552
	Annual % Toward Planned Net Savings (kWh)	6%	109%	526%	348%	186%		288%
	Avg. Gross Savings Per Participant (kWh/yr)	790	737	537	493	446	552	505
	Avg. Net Savings Per Participant (kWh/yr)	970	905	659	620	561	694	628
Installed kW	Total Gross Demand Reduction (kW)	3	140	1,106	695	693	76	2,713
154%	Realization Rate Adjustment (kW)	2	75	592	372	371	41	1,452
	Realization Rate Adjusted Gross Demand Reduction (kW)	5	215	1,698	1,066	1,064	117	4,165
82%	Net-To-Gross Adjustment (kW)	-1	-43	-340	-193	-193	-21	-790
	Net Adjusted Demand Reduction (kW)	4	172	1,358	873	871	96	3,374
	Planned Net Demand Reduction (kW)	85	225	437	437	1,002	0	2,186
	Annual % Toward Planned Net Reduction (kW)	4%	76%	311%	200%	87%		154%
	Avg. Gross Demand Reduction Per Participant (kW)	0.1	0.1	0.1	0.05	0.05	0.05	0.05
	Avg. Net Demand Reduction Per Participant (kW)	0.1	0.1	0.1	0.06	0.06	0.06	0.07
Program Performance	Annual \$Admin. per Participant (Gross)	\$1,481	\$69	\$15	\$10	\$10	\$19	\$15
	Annual \$Admin. per kWh/year (Gross)	\$2	\$0	\$0.03	\$0.02	\$0	\$0	\$0.03
	Annual \$Admin. per kW (Gross)	\$14,840	\$771	\$273	\$206	\$220	\$366	\$287
	Annual \$EM&V per \$Total	4.9%	9.7%	0.8%	2.6%	3.2%	12.1%	3.0%
	Annual \$Rebate per Participant (Gross)	\$220	\$226	\$226	\$206	\$208	\$217	\$215

⁶ Program closed end of 2017.

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.
2. The 2017 total gross deemed savings values reported in this table include adjustments of -2.1 kWh/year and -0.00044 kW made to the January 2017 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017. Specifically, the correction was in section 2.1.5 for "Low-Flow Showerhead" measures, to the " ΔT " variable, which is a measure of the change in temperature of the water used for shower and temperature entering the house ($\Delta T = T_{\text{shower}} - T_{\text{in house}}$). STEP Manual 7.0.0 reported the value as 44.9°F, but has been corrected to 44.1°F. This correction is reflected in STEP Manual version 8.0.0 in this EM&V report.

A.15 Virginia Residential Appliance Recycling Program 2015-2018⁷

VA- Residential Appliance Recycling Program		2015	2016	2017	2018	2015-2018
Category	Indicator	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate					
O&M (\$)	Direct Implementation					
O&M (\$)	Direct EM&V					
O&M (\$)	Indirect Other (Administrative)	\$21,660	\$65,648	\$38,635	\$3,094	\$129,037
Costs (\$)	Total					
Costs (\$)	Planned					
Costs (\$)	Variance					
	Annual % of Planned	84%	104%	90%	523%	97%
Participants ¹	Total (Gross)	3,206	7,735	3,131	0	14,072
	Planned (Gross)	3,750	7,500	3,000	0	14,250
	Variance	-544	235	131	0	-178
	Annual % of Planned (Gross)	85%	103%	104%		99%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	3,618,359	7,552,110	3,016,432	0	14,186,901
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	3,618,359	7,552,110	3,016,432	0	14,186,901
77%	Net-To-Gross Adjustment (kWh/yr)	-832,223	-1,736,985	-693,779	0	-3,262,987
	Net Adjusted Savings (kWh/yr)	2,786,136	5,815,125	2,322,653	0	10,923,914
	Planned Net Savings (kWh/yr)	6,564,000	3,736,801	1,346,206	0	11,647,008
	Annual % Toward Planned Net Savings (kWh)	42%	156%	173%		94%
	Avg. Gross Savings Per Participant (kWh/yr)	1,129	976	963		1,008
	Avg. Net Savings Per Participant (kWh/yr)	869	752	742		776
Installed kW	Total Gross Demand Reduction (kW)	541.6	1,130.4	451.5	0.0	2,123.5
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	541.6	1,130.4	451.5	0.0	2,123.5
77%	Net-To-Gross Adjustment (kW)	-124.6	-260.0	-103.8	0.0	-488.4
	Net Adjusted Demand Reduction (kW)	417.0	870.4	347.7	0.0	1,635.1
	Planned Net Demand Reduction (kW)	1,220.7	559.4	201.5	0.0	1,981.6
	Annual % Toward Planned Net Reduction (kW)	34%	156%	173%		83%
	Avg. Gross Demand Reduction Per Participant (kW)	0.17	0.15	0.14		0.15
	Avg. Net Demand Reduction Per Participant (kW)	0.13	0.11	0.11		0.12
Program Performance	Annual \$Admin. per Participant (Gross)	\$7	\$8	\$12	\$10	\$9
	Annual \$Admin. per kWh/year (Gross)	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
	Annual \$Admin. per kW (Gross)	\$40	\$58	\$86	\$68	\$61
	Annual \$EM&V per \$Total	1.1%	4.5%	7.3%	6.1%	5.6%
	Annual \$Rebate per Participant (Gross)	\$51	\$50	\$50	\$50	\$50

1. A participant is a unique account number.

⁷ Program closed end of 2017.

A.16 Virginia Commercial Lighting Program 2010-2012⁸

VA- Commercial Lighting Program		2010	2011	2012	2010-2012
Category	Indicator	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate				
O&M (\$)	Direct Implementation				
O&M (\$)	Direct EM&V				
O&M (\$)	Indirect Other (Administrative)	\$574,965	\$419,642	\$310,152	\$1,304,759
Costs (\$)	Total				
Costs (\$)	Planned				
Costs (\$)	Variance				
	Cum. % toward planned total	112.7%	87.1%	29.1%	58.0%
Participants	Total (Gross)	399	1,307	703	2,409
	Planned (Gross)	26	146	32	204
	Variance	373	1,161	671	2,205
	Cum % toward planned total (Gross)	1534.6%	895.2%	2196.9%	1180.9%
kWh	Total Gross Deemed Savings	13,533,989	42,212,316	23,709,597	79,455,902
178.0%	Realization Rate Adjustment ¹	10,581,378	32,807,324	18,502,140	61,890,842
	Adjusted Gross Savings	24,115,366	75,019,641	42,211,737	141,346,744
50.0%	Net-To-Gross Adjustment	-12,057,683	-37,509,820	-21,105,869	-70,673,372
	Net Adjusted Savings	12,057,683	37,509,820	21,105,869	70,673,372
	Planned Savings (Net)	6,364,934	35,764,075	7,716,991	49,846,000
	Cum. % Toward Planned Savings (Net)	189.4%	104.9%	273.5%	141.8%
	Avg. Savings Per Participant (Net)	30,220	28,699	30,023	29,337
kW	Total Gross Deemed Demand	3,049	9,553	5,450	18,052
98.0%	Realization Rate Adjustment	-61.0	-191.1	-109.0	
	Adjusted Gross Demand	2,988	9,362	5,341	
50.0%	Net-To-Gross Adjustment	-1,494	-4,681	-2,670	-8,845
	Net Adjusted Demand	1,494	4,681	2,670	8,845
	Planned Demand (Net)	798	4,490	969	6,257
	Cum. % Toward Planned Demand (Net)	187.2%	104.3%	275.6%	141.4%
	Avg. Demand Per Participant (Net)	4	4	4	6,257
Program Performance	Cum. \$Admin. per Cum. Participant (Gross)	\$1,441	\$321	\$441	\$542
	Cum. \$Admin. per Cum. kWh (Gross)	\$0.04	\$0.01	\$0.01	\$0.02
	Cum. \$Admin. per Cum. kW (Gross)	\$189	\$44	\$57	\$72
	Cum. \$EM&V per Cum Total Costs (\$)	1.3%	5.9%	1.8%	3.9%
	Cum. \$Rebate per Cum. Participant (Gross)	\$2,445	\$2,829	\$2,681	\$2,722

1. Realization rate is 177% January 1st through May 30th, 179% June 1st through September 30th, and 177% October 1st through December 31st.

⁸ Program closed July 31, 2012.

A.17 Virginia Commercial HVAC Program 2010-2012⁹

VA- Commercial HVAC Program		2010	2011	2012	2010-2012
Category	Indicator	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate				
O&M (\$)	Direct Implementation				
O&M (\$)	Direct EM&V				
O&M (\$)	Indirect Other (Administrative)	\$109,504	\$109,822	\$68,630	\$287,956
Costs (\$)	Total				
Costs (\$)	Planned				
Costs (\$)	Variance				
	Cum. % toward planned total	111.5%	119.6%	37.3%	74.9%
Participants	Total (Gross)	28	59	36	123
	Planned (Gross)	36	199	44	279
	Variance	-8	-140	-8	-156
	Cum % toward planned total (Gross)	77.8%	29.6%	81.8%	44.1%
kWh	Total Gross Deemed Savings	2,125,025	17,330,556	4,489,128	23,944,709
63.3%	Realization Rate Adjustment 1	-1,057,231	-7,280,807	-2,661,321	-10,999,359
	Adjusted Gross Savings	1,067,795	10,049,749	1,827,807	12,945,351
45.0%	Net-To-Gross Adjustment	-587,287	-5,527,362	-1,005,294	-7,119,943
	Net Adjusted Savings	480,508	4,522,387	822,513	5,825,408
	Planned Savings (Net)	993,361	5,481,166	1,209,473	7,684,000
	Cum. % Toward Planned Savings (Net)	48.4%	82.5%	68.0%	75.8%
	Avg. Savings Per Participant (Net)	17,161	76,651	22,848	47,361
kW	Total Gross Deemed Demand	281	1,629	568	2,477
97.0%	Realization Rate Adjustment	110	555	316	981
	Adjusted Gross Demand	390	2,184	884	3,458
45.0%	Net-To-Gross Adjustment	-215	-1,201	-486	-1,902
	Net Adjusted Demand	176	983	398	1,556
	Planned Demand (Net)	401	2,210	488	3,099
	Cum. % Toward Planned Demand (Net)	43.8%	44.5%	81.5%	50.2%
	Avg. Demand Per Participant (Net)	6	17	11	13
Program Performance	Cum. \$Admin. per Cum. Participant (Gross)	\$3,911	\$1,861	\$1,906	\$2,341
	Cum. \$Admin. per Cum. kWh (Gross)	\$0.05	\$0.01	\$0.02	\$0.01
	Cum. \$Admin. per Cum. kW (Gross)	\$390	\$67	\$121	\$116
	Cum. \$EM&V per Cum Total Costs (\$)	6.3%	19.0%	19.1%	16.9%
	Cum. \$Rebate per Cum. Participant (Gross)	\$5,120	\$11,274	\$3,946	\$8,883

1. Realization rate is 63% January 1st through May 30th, 35% June 1st through September 30th, and 63% October 1st through December 31st.

⁹ Program closed July 31, 2012.

A.18 Virginia Non-residential Duct Testing and Sealing Program 2012-2017¹⁰

VA - Non-Residential Duct Sealing and Testing Program		2012	2013	2014	2015	2016	2017	2012-2017
Category	Indicator	Total	Total	Total	Total	Total ²	Total	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$71,464	\$202,348	\$393,299	\$219,936	\$171,043	\$69,478	\$1,127,568
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	34%	52%	160%	128%	94%	157%	108%
Participants ¹	Total (Gross)	11	357	1,700	1,655	640	81	4,444
	Planned (Gross)	112	299	472	472	578	0	1,933
	Variance	-101	58	1,228	1,183	62	81	-2,511
	Annual % of Planned (Gross)	10%	119%	360%	351%	111%		230%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	77,742	1,765,683	28,470,361	20,488,106	26,352,640	4,251,334	81,405,866
87%	Realization Rate Adjustment (kWh/yr)	-10,106	-229,539	-3,701,147	-2,663,454	-3,425,843	-552,673	-10,582,763
	Realization Rate Adjusted Savings (kWh/yr)	67,635	1,536,144	24,769,214	17,824,652	22,926,796	3,698,661	70,823,104
97%	Net-To-Gross Adjustment (kWh/yr)	-1,894	-43,012	-693,538	-499,090	-641,950	-103,563	-1,983,047
	Net Adjusted Savings (kWh/yr)	65,742	1,493,132	24,075,676	17,325,562	22,284,846	3,595,098	68,840,057
	Planned Net Savings (kWh/yr)	3,324,000	8,826,223	15,569,864	15,569,864	3,432,339	0	46,722,290
	Annual % Toward Planned Net Savings (kWh)	2%	17%	155%	111%	649%		147%
	Avg. Gross Savings Per Participant (kWh/yr)	7,067	4,946	16,747	12,380	41,176	52,486	18,318
	Avg. Net Savings Per Participant (kWh/yr)	5,977	4,182	14,162	10,469	34,820	44,384	15,491
Installed kW	Total Gross Demand Reduction (kW)	8	508	2,051	2,514	2,594	695	8,370
94%	Realization Rate Adjustment (kW)	0	-29	-119	-146	-150	-40	-485
	Realization Rate Adjusted Gross Demand Reduction (kW)	8	478	1,932	2,368	2,444	655	7,884
97%	Net-To-Gross Adjustment (kW)	0	-13	-54	-66	-68	-18	-221
	Net Adjusted Demand Reduction (kW)	7	465	1,878	2,301	2,375	637	7,663
	Planned Net Demand Reduction (kW)	737	1,963	3,479	3,479	1,409	0	11,066
	Annual % Toward Planned Net Reduction (kW)	1%	24%	54%	66%	169%		69%
	Avg. Gross Demand Reduction Per Participant (kW)	0.73	1.42	1.21	1.52	4.05	8.58	1.88
	Avg. Net Demand Reduction Per Participant (kW)	0.67	1.30	1.10	1.39	3.71	7.86	1.72
Program Performance	Annual \$Admin. per Participant (Gross)	\$6,497	\$567	\$231	\$133	\$267	\$858	\$254
	Annual \$Admin. per kWh/year (Gross)	\$0.92	\$0.11	\$0.01	\$0.01	\$0.01	\$0.02	\$0.01
	Annual \$Admin. per kW (Gross)	\$8,904	\$398	\$192	\$88	\$66	\$100	\$135
	Annual \$EM&V per \$Total	11.8%	2.8%	4.1%	1.1%	2.0%	4.5%	2.9%
	Annual \$Rebate per Participant (Gross)	\$1,203	\$4,313	\$4,388	\$3,846	\$7,622	\$18,095	\$4,888

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.
2. The 2016 total gross deemed savings values reported in this table differs from values in the May 1, 2017 EM&V report, and have been refiled with the Commission. An adjustment totaled -30,849,970 kWh/year and 0 kW for 2016 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017, in section 12. The adjustment was made to full load heating hours (FLHheat) in Tables 90 and 91 to be consistent with those in the Mid-Atlantic TRM v 6, in response to requests by the North Carolina Public Staff Utilities Commission Re: Docket No. E-22, Sub 545, on October 23, 2017. This affected multiple non-residential HVAC measures (e.g. heat pumps, variable refrigerant flow, mini split systems) that reference Table 90 and 91, in multiple non-residential programs. This adjustment is reflected in STEP Manual version 8.0.0 in this EM&V report.

¹⁰ Program closed end of 2017.

A.19 Virginia Non-residential Energy Audit Program 2012-2017¹¹

VA - Non-Residential Energy Audit Program		2012	2013	2014	2015	2016	2017	2012-2017
Category	Indicator	Total	Total	Total	Total	Total	Total	Program Total
O&M (\$)	Direct Rebate							
O&M (\$)	Direct Implementation							
O&M (\$)	Direct EM&V							
O&M (\$)	Indirect Other (Administrative)	\$67,698	\$151,749	\$309,322	\$15,730	\$74,888	\$10,321	\$629,710
Costs (\$)	Total							
Costs (\$)	Planned							
Costs (\$)	Variance							
	Annual % of Planned	67%	93%	260%	24%	127%	86%	124%
Audits	Total (Gross)	8	514	22	69	118	4	735
Participants ¹	Total (Gross)	1	302	1,116	73	125	15	1,632
	Planned (Gross)	138	373	589	589	721	0	2,410
	Variance	-137	-71	527	-516	-596	15	-778
	Annual % of Planned (Gross)	1%	81%	189%	12%	17%		68%
Installed kWh/year	Total (Gross)	35,433	4,498,061	31,588,249	667,407	6,765,468	196,549	43,751,165
	Attribution Rate weighted by Measure	100%	98%	99%	84%	99%	95%	93%
	Realization Rate weighted by Measure	97%	72%	93%	97%	92%	86%	91%
	Adjusted (Net) by Realization Rate and Attribution Rate	34,538	3,168,993	29,013,666	546,608	6,211,917	162,456	39,138,178
	Planned (Net)	3,401,000	9,140,494	17,399,649	17,399,649	4,818,529	0	52,159,321
	Annual % Toward Planned Net Savings (kWh)	1.0%	35%	167%	3%	129%		75%
	Avg. Gross Savings Per Participant (kWh/yr)	35,433	14,894	28,305	9,143	54,124	13,103	26,808
	Avg. Net Savings Per Participant (kWh/yr)	34,538	10,493	25,998	7,488	49,695	10,830	23,982
Installed kW	Total (Gross)	10	956	2,104	9	765	24	3,868
	Attribution Rate weighted by Measure	100%	98%	99%	94%	99%	93%	99%
	Realization Rate weighted by Measure	97%	78%	83%	66%	92%	86%	84%
	Adjusted (Net) by Realization Rate and Attribution Rate	10	733	1,724	7	701	19	3,195
	Planned (Net)	600	1,614	15,040	6,390	740	0	24,384
	Annual % Toward Planned Net Reduction (kW)	2%	45%	11%	0%	95%		13%
	Avg. Gross Demand Reduction Per Participant (kW)	10.0	3.2	1.9	0.1	6.1	1.6	2.4
	Avg. Net Demand Reduction Per Participant (kW)	9.8	2.4	1.5	0.1	5.6	1.3	2.0
Program Performance	Annual \$Admin. per Participant (Gross)	\$67,698	\$502	\$277	\$215	\$599	\$688	\$386
	Annual \$Admin. per kWh/year (Gross)	\$1.91	\$0.03	\$0.01	\$0.02	\$0.01	\$0.05	\$0.01
	Annual \$Admin. per kW (Gross)	\$6,737	\$159	\$147	\$1,846	\$98	\$422	\$0.01
	Annual \$EM&V per \$Total	17.6%	4.9%	6.7%	19.5%	4.5%	41.1%	7.8%
	Annual \$Rebate per Participant (Gross)	\$7,413	\$3,605	\$3,953	\$564	\$15,359	\$4,456	\$4,617

1. A participant is a single unit that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.

¹¹ Program closed end of 2017.



B. PROGRAM PERFORMANCE INDICATOR TABLES FOR NORTH CAROLINA

B.1 North Carolina Residential Income and Age Qualifying Home Improvement Program 2016-2018

B.1.1 2016-2018 Annual Indicator Tables

NC- Residential Income and Age Qualifying Home Improvement Program		2016	2017	2018	2016-2018
Category	Indicator	Total	Total ²	Total	Program Total
O&M (\$)	Direct Rebate				
O&M (\$)	Direct Implementation				
O&M (\$)	Direct EM&V				
O&M (\$)	Indirect Other (Administrative)	\$8,999	\$12,899	\$1,949	\$23,847
Costs (\$)	Total				
Costs (\$)	Planned				
Costs (\$)	Variance				
	Annual % of Planned	75%	107%	23%	77%
Participants ¹	Total (Gross)	157	130	1	288
	Planned (Gross)	257	254	0	511
	Variance	-100	-124	1	-223
	Annual % of Planned (Gross)	61%	51%	N/A	56%
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	106,379	109,794	723	216,897
100%	Realization Rate Adjustment (kWh/yr)	0	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	106,379	109,794	723	216,897
80%	Net-To-Gross Adjustment (kWh/yr)	-21,276	-21,959	-145	-43,379
	Net Adjusted Savings (kWh/yr)	85,103	87,835	579	173,518
	Planned Net Savings (kWh/yr)	67,040	51,199	0	118,239
	Annual % Toward Planned Net Savings (kWh)	127%	172%	N/A	147%
	Avg. Gross Savings Per Participant (kWh/yr)	678	845	723	753
	Avg. Net Savings Per Participant (kWh/yr)	542	676	579	602
Installed kW	Total Gross Demand Reduction (kW)	10.6	9.1	0.1	19.8
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	10.6	9.1	0.1	19.8
80%	Net-To-Gross Adjustment (kW)	-2.1	-1.8	0.0	-4.0
	Net Adjusted Demand Reduction (kW)	8.5	7.3	0.0	15.8
	Planned Net Demand Reduction (kW)	15.0	11.4	0.0	26.4
	Annual % Toward Planned Net Reduction (kW)	57%	64%	N/A	60%
	Avg. Gross Demand Reduction Per Participant (kW)	0.07	0.07	0.06	0.07
	Avg. Net Demand Reduction Per Participant (kW)	0.05	0.06	0.05	0.05
Program Performance	Annual \$Admin. per Participant (Gross)	\$57	\$99	\$1,949	\$2,106
	Annual \$Admin. per kWh/year (Gross)	\$0.08	\$0.12	\$2.70	\$3
	Annual \$Admin. per kW (Gross)	\$847	\$1,415	\$31,929	\$34,192
	Annual \$EM&V per \$Total	2.0%	2.3%	18.2%	22.5%
	Annual \$Rebate per Participant (Gross)	\$1,442	\$1,939	\$1,763	\$1,667

1. A participant is unique account that has been installed and rebated. A unique account number may represent multiple participants if that account had multiple units installed and rebated.
2. The 2017 total gross deemed savings values reported in this table include adjustments of -307 kWh/year and -0.026 kW made to the January 2017 reported savings. The adjustments accounts for corrections to STEP Manual version 7.0.0 issued on May 1, 2017. Specifically, the correction was in section 2.1.5 for "Low-Flow Showerhead" measures, to the " ΔT " variable, which is a measure of the change in temperature of the water used for shower and temperature entering the house ($\Delta T = T_{\text{shower}} - T_{\text{in house}}$). STEP Manual 7.0.0 reported the value as 44.9°F, but has been corrected to 44.1°F. This correction is reflected in STEP Manual version 8.0.0 in this EM&V report.

B.1.2 2018 Monthly Indicator Tables

NC- Residential Income and Age Qualifying Home Improvement Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2016-2018
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M (\$)	Direct Rebate															
O&M (\$)	Direct Implementation															
O&M (\$)	Direct EM&V															
O&M (\$)	Indirect Other (Administrative)	\$362	\$255	-\$3	\$12	\$195	\$4	\$17	\$3	\$378	\$320	\$164	\$243	\$1,949	\$23,847	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	4%	7%	7%	7%	10%	10%	10%	10%	14%	18%	20%	23%	23%	77%	
Participants ¹	Total (Gross)	1	0	0	0	0	0	0	0	0	0	0	0	1	288	
	Planned (Gross)	0	0	0	0	0	0	0	0	0	0	0	0	0	511	
	Variance	1	0	0	0	0	0	0	0	0	0	0	0	1	-223	
	Annual % of Planned (Gross)	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	56%	
Installed kWh/year	Total Gross Deemed Savings (kWh/yr)	723	0	0	0	0	0	0	0	0	0	0	0	723	216,897	
	100% Realization Rate Adjustment (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Realization Rate Adjusted Savings (kWh/yr)	723	0	0	0	0	0	0	0	0	0	0	0	723	216,897	
	80% Net-To-Gross Adjustment (kWh/yr)	-145	0	0	0	0	0	0	0	0	0	0	0	-145	-43,379	
	Net Adjusted Savings (kWh/yr)	579	0	0	0	0	0	0	0	0	0	0	0	579	173,518	
	Planned Net Savings (kWh/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	118,239	
	Annual % Toward Planned Net Savings (kWh)	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	147%	
	Avg. Gross Savings Per Participant (kWh/yr)	723	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	723	753	
	Avg. Net Savings Per Participant (kWh/yr)	579	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	579	602	
Installed kW	Total Gross Demand Reduction (kW)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	19.8	
	100% Realization Rate Adjustment (kW)	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	
	Realization Rate Adjusted Gross Demand Reduction (kW)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	19.8	
	80% Net-To-Gross Adjustment (kW)	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	-4.0	
	Net Adjusted Demand Reduction (kW)	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	15.8	
	Planned Net Demand Reduction (kW)	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	26.4	
	Annual % Toward Planned Net Reduction (kW)	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	60%	
	Avg. Gross Demand Reduction Per Participant (kW)	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.06	0.07	
	Avg. Net Demand Reduction Per Participant (kW)	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	0.05	
Program Performance	Annual \$Admin. per Participant (Gross)	\$362	\$617	\$614	\$626	\$820	\$825	\$842	\$845	\$1,223	\$1,543	\$1,707	\$1,949	\$1,949	\$2,106	
	Annual \$Admin. per kWh/year (Gross)	\$0.50	\$0.85	\$0.85	\$0.87	\$1.13	\$1.14	\$1.16	\$1.17	\$1.69	\$2.13	\$2.36	\$2.70	\$2.70	\$3.0	
	Annual \$Admin. per kW (Gross)	\$5,924	\$10,106	\$10,049	\$10,249	\$13,435	\$13,509	\$13,794	\$13,837	\$20,028	\$25,266	\$27,954	\$31,929	\$31,929	\$34,192	
	Annual \$EM&V per \$ Total	0.0%	0.0%	0.0%	0.0%	22.4%	22.3%	21.8%	21.7%	15.0%	16.0%	14.5%	18.2%	18.2%	22.5%	
	Annual \$Rebate per Participant (Gross)	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,763	\$1,667	

B.2 North Carolina Residential Retail LED Lighting Program 2017-2018

B.2.1 2017-2018 Annual Indicator Tables

NC- Residential LED Program		2017 Total ²	2018 Total	2017-2018 Program Total
Category	Indicator			
O&M(\$)	Direct Rebate			
O&M(\$)	Direct Implementation			
O&M(\$)	Direct EM&V			
O&M(\$)	Indirect Other (Administrative)	\$26,160	\$73,173	\$99,334
Costs (\$)	Total			
Costs (\$)	Planned			
Costs (\$)	Variance			
	Annual % of Planned	61.1%	110.6%	86.8%
Participants ¹	Total (Gross)	70,261	264,236	334,497
	Planned (Gross)	165,000	220,000	385,000
	Variance	-94,739	44,236	-50,503
	Annual % of Planned (Gross)	42.6%	120.1%	86.9%
Purchased kWh/year	Total Gross Deemed Savings (kWh/yr)	2,215,073	5,918,263	8,133,336
100%	Realization Rate Adjustment (kWh/yr)	0	0	0
	Realization Rate Adjusted Savings (kWh/yr)	2,215,073	5,918,263	8,133,336
85%	Net-To-Gross Adjustment (kWh/yr)	-332,261	-887,739	-1,220,000
	Net Adjusted Savings (kWh/yr)	1,882,812	5,030,524	6,913,336
	Planned Net Savings (kWh/yr)	2,250,789	3,874,754	6,125,543
	Annual % Toward Planned Net Savings (kW)	83.7%	129.8%	112.9%
	Avg. Gross Savings Per Participant (kWh/yr)	32	22	24
	Avg. Net Savings Per Participant (kWh/yr)	27	19	21
Purchased kW	Total Gross Demand Reduction (kW)	242.4	606.0	848.5
100%	Realization Rate Adjustment (kW)	0.0	0.0	0.0
	Realization Rate Adjusted Gross Demand Reduction (kW)	242.4	606.0	848.5
85%	Net-To-Gross Adjustment (kW)	-36.4	-90.9	-127.3
	Net Adjusted Demand Reduction (kW)	206.1	515.1	721.2
	Planned Net Demand Reduction (kW)	331.1	433.0	764.1
	Annual % Toward Planned Net Reduction (kW)	62.2%	119.0%	94.4%
	Avg. Gross Demand Reduction Per Participant (kW)	0.0	0.0	0.0
	Avg. Net Demand Reduction Per Participant (kW)	0.0	0.0	0.0
Program Performance	Annual \$Admin. per Participant (Gross)	\$0.37	\$0.28	\$0.30
	Annual \$Admin. per kWh/year (Gross)	\$0.01	\$0.01	\$0.01
	Annual \$Admin. per kW (Gross)	\$108	\$121	\$117
	Annual \$EM&V per \$Total	6.8%	6.6%	6.7%
	Annual \$Rebate per Participant (Gross)	\$1.87	\$2.68	\$2.51

1. A participant is a lamp.
2. Values in the 2017 Installed Energy Savings (kWh/year) rows differ from those reported in the May 1, 2018 EM&V report in response to requests by the North Carolina Public Staff Utilities Commission Re: 2018 NC DSM Case – Docket No. E-22 Sub 545 and Sub 556 Data Request No. 05 (on September 28, 2018). The resulting two adjustments that were made affected the 2017 Purchased Energy Savings (kWh/year) calculations. First, an adjustment was made to Appendix F. Section 17, Residential Retail LED Lighting Program, Table 128. Input Parameter for LED Lighting Savings. The hours of use per year (HOU) value of 1,059 hours/year (Opinion Dynamics “Evaluation of the PH2015 Duke Energy Progress Energy Efficient Lighting Program” report, Dec. 5, 2016) was reduced to 920 hours/year (Northeast Energy Efficiency Partnership Mid-Atlantic Technical Reference Manual Version 7.0, May 2017). Second, there was a correction for the misapplication of the Non-residential Small Business Improvement NTG factor of 93% to the Residential Retail LED Lighting Program. The NTG rate was reduced to 85%, per program initial design assumptions, as documented in Table 3 3. Net-to-Gross Factors and Sources by Program, and Table 4 6. Residential LED Lighting Program Planning Assumptions in North Carolina.

B.2.2 2018 Monthly Indicator Tables

NC- Residential LED Program		2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2017-2018	
Category	Indicator	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Total	Program Total	
O&M(\$)	Direct Rebate															
O&M(\$)	Direct Implementation															
O&M(\$)	Direct EM&V															
O&M(\$)	Indirect Other (Administrative)	\$5,613	\$5,615	\$6,309	\$4,289	\$3,135	\$5,320	\$5,668	\$4,239	\$2,136	\$16,296	\$5,176	\$9,377	\$73,173	\$99,334	
Costs (\$)	Total															
Costs (\$)	Planned															
Costs (\$)	Variance															
	Annual % of Planned	8.5%	17.0%	26.5%	33.0%	37.7%	45.8%	54.4%	60.8%	64.0%	88.6%	96.5%	110.6%	110.6%	86.8%	
Participants ¹	Total (Gross)	12,482	29,279	13,614	21,629	11,552	14,694	20,050	25,185	32,534	11,899	42,003	29,315	264,236	334,497	
	Planned (Gross)	18,334	18,334	18,334	18,334	18,333	18,333	18,333	18,333	18,333	18,333	18,333	18,333	226,000	385,000	
	Variance	-5,852	10,945	-4,720	3,295	-6,781	-3,639	1,717	6,852	14,201	-6,434	23,670	10,982	44,236	-50,503	
	Annual % of Planned (Gross)	5.7%	19.0%	25.2%	35.0%	40.3%	46.9%	56.0%	67.5%	82.3%	87.7%	106.8%	120.1%	120.1%	86.9%	
Purchased kWh/year	Total Gross Deemed Savings (kWh/yr)	279,402	672,359	309,633	475,349	268,163	344,947	452,527	556,847	645,848	285,558	910,260	717,369	5,918,263	8,133,336	
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	85%	279,402	672,359	309,633	475,349	268,163	344,947	452,527	556,847	645,848	285,558	910,260	717,369	5,918,263	8,133,336	
	Net-To-Gross Adjustment (kWh/yr)	-41,910	-100,854	-46,445	-71,302	-40,224	-51,742	-67,879	-83,527	-96,877	-42,834	-136,539	-107,605	-887,739	-1,220,000	
	Net Adjusted Savings (kWh/yr)	237,492	571,505	263,188	404,047	227,939	293,205	384,648	473,320	548,971	242,724	773,721	609,763	5,030,524	6,913,336	
	Planned Net Savings (kWh/yr)	322,897	322,897	322,896	322,896	322,896	322,896	322,896	322,896	322,896	322,896	322,896	322,896	322,896	3,874,754	6,125,543
	Annual % Toward Planned Net Savings (kWh)	6.1%	20.9%	27.7%	38.1%	44.0%	51.5%	61.5%	73.7%	87.9%	94.1%	114.1%	129.8%	129.8%	112.9%	
	Avg. Gross Savings Per Participant (kWh/yr)	22	23	23	22	23	23	23	22	20	24	22	24	22	24	
	Avg. Net Savings Per Participant (kWh/yr)	19	20	19	19	20	20	19	19	17	20	18	21	19	21	
	Purchased kW	Total Gross Demand Reduction (kW)	28.6	68.8	31.7	48.7	27.5	35.3	46.3	57.0	66.1	29.2	93.2	73.5	606.0	848.5
100%		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	
85%		28.6	68.8	31.7	48.7	27.5	35.3	46.3	57.0	66.1	29.2	93.2	73.5	606.0	848.5	
Net-To-Gross Adjustment (kW)		-4.3	-10.3	-4.8	-7.3	-4.1	-5.3	-7.0	-8.6	-9.9	-4.4	-14.0	-11.0	-90.9	-127.3	
Net Adjusted Demand Reduction (kW)		24.3	58.5	27.0	41.4	23.3	30.0	39.4	48.5	56.2	24.9	79.2	62.4	515.1	721.2	
Planned Net Demand Reduction (kW)		37.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	433.0	764.1	
Annual % Toward Planned Net Reduction (kW)		5.0%	19.1%	25.4%	34.9%	40.3%	47.2%	56.3%	67.5%	80.5%	86.2%	104.5%	119.0%	119.0%	94.4%	
Avg. Gross Demand Reduction Per Participant (kW)		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	
Avg. Net Demand Reduction Per Participant (kW)		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	
Program Performance		Annual \$Admin. per Participant (Gross)	\$0.45	\$0.27	\$0.32	\$0.28	\$0.28	\$0.29	\$0.29	\$0.27	\$0.23	\$0.36	\$0.27	\$0.28	\$0.28	\$0.30
	Annual \$Admin. per kWh/year (Gross)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0.01	\$0.01	
	Annual \$Admin. per kW (Gross)	\$196	\$115	\$136	\$123	\$122	\$126	\$125	\$117	\$103	\$133	\$120	\$121	\$121	\$117	
	Annual SEM&V per \$Total	7.0%	7.6%	4.9%	3.9%	7.9%	8.7%	8.4%	9.1%	8.6%	6.7%	6.6%	6.6%	6.6%	6.7%	
	Annual \$Rebate per Participant (Gross)	\$2.85	\$1.66	\$2.57	\$2.36	\$2.05	\$2.19	\$2.29	\$2.08	\$1.73	\$2.84	\$2.54	\$2.68	\$2.68	\$2.51	