

Appendix C.5 Non-residential Window Film Program 2014-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
		Net kW							Net kWh/Participant for IRP			Net kW/Participant for IRP		
Month	Year	VA		NC		System			VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP						
January	2014	0		0				0	-	-	-	-	-	-
February	2014	0		0				0	-	-	-	-	-	-
March	2014	0		0				0	-	-	-	-	-	-
April	2014	0		0				0	-	-	-	-	-	-
May	2014	0		0				0	-	-	-	-	-	-
June	2014	0		0				0	-	-	-	-	-	-
July	2014	0		0				0	-	-	-	-	-	-
August	2014	0		0				0	-	-	-	-	-	-
September	2014	0		0				0	-	-	-	-	-	-
October	2014	1		1				1	222		222	0.80		0.80
November	2014	0		1				1	222		222	0.80		0.80
December	2014	232		233				233	32,013		32,013	77.71		77.71
January	2015	0		233				233	19,210		19,210	46.55		46.55
February	2015	1		234				234	12,029		12,029	29.28		29.28
March	2015	0		234				234	10,697		10,697	26.05		26.05
April	2015	621		855				855	31,951		31,951	77.75		77.75
May	2015	0		856				856	27,037		27,037	65.81		65.81
June	2015	1		857				857	21,989		21,989	53.55		53.55
July	2015	0		857				857	20,695		20,695	50.41		50.41
August	2015	1		857				857	18,524		18,524	45.13		45.13
September	2015	0		857				857	17,598		17,598	42.87		42.87
October	2015	2		859				859	16,015		16,015	39.05		39.05
November	2015	0		860				860	15,326		15,326	37.37		37.37
December	2015	0		860				860	14,101		14,101	34.39		34.39
January	2016	57		917	0		0	917	12,644	-	12,644	31.61	-	31.61
February	2016	3		919	0		0	919	11,134	-	11,134	27.86	-	27.86
March	2016	13		933	0		0	933	9,246	-	9,246	23.31	-	23.31
April	2016	7		940	0		0	940	7,913	-	7,913	20.00	-	20.00
May	2016	2		942	0		0	942	7,026	-	7,026	17.77	-	17.77
June	2016	1		942	0		0	942	6,539	-	6,539	16.53	-	16.53
July	2016	9		951	0		0	951	5,263	-	5,263	13.05	-	13.05
August	2016	5		957	0		0	957	5,316	-	5,316	13.47	-	13.47
September	2016	12		968	0		0	968	4,711	-	4,711	11.96	-	11.96
October	2016	7		976	0		0	976	4,360	-	4,360	11.09	-	11.09
November	2016	23		999	0		0	999	4,162	-	4,162	10.63	-	10.63
December	2016	0		999	0		0	999	4,118	-	4,118	10.52	-	10.52
January	2017	9		1,009	0		0	1,009	3,974	-	3,974	10.19	-	10.19
February	2017	54		1,062	0		0	1,062	4,010	-	4,010	10.41	-	10.41
March	2017	32		1,094	0		0	1,094	3,952	-	3,952	10.32	-	10.32
April	2017	42		1,136	0		0	1,136	4,035	-	4,035	10.62	-	10.62
May	2017	3		1,140	0		0	1,140	3,796	-	3,796	10.00	-	10.00
June	2017	16		1,156	0		0	1,156	3,791	-	3,791	10.05	-	10.05
July	2017	55		1,210	0		0	1,210	3,832	-	3,832	10.26	-	10.26
August	2017	116		1,326	0		0	1,326	3,703	-	3,703	9.97	-	9.97
September	2017	7		1,333	0		0	1,333	3,529	-	3,529	9.52	-	9.52
October	2017	29		1,362	0		0	1,362	3,382	-	3,382	9.20	-	9.20
November	2017	109		1,470	0		0	1,470	3,478	-	3,478	9.55	-	9.55
December	2017	1		1,471	0		0	1,471	3,479	-	3,479	9.55	-	9.55
January	2018	19		1,490	0		0	1,490	3,445	-	3,445	9.49	-	9.49
February	2018	1		1,491	0		0	1,491	3,238	-	3,238	8.93	-	8.93
March	2018	1		1,492	0		0	1,492	3,203	-	3,203	8.83	-	8.83
April	2018	3		1,495	0		0	1,495	3,134	-	3,134	8.64	-	8.64
May	2018	3		1,498	0		0	1,498	2,932	-	2,932	8.10	-	8.10
June	2018	3		1,501	0		0	1,501	2,844	-	2,844	7.86	-	7.86
July	2018	2		1,503	0		0	1,503	2,801	-	2,801	7.74	-	7.74
August	2018	7		1,510	1		1	1,510	2,686	376	2,678	7.44	0.74	7.40
September	2018	7		1,517	0		1	1,518	2,567	376	2,557	7.12	0.74	7.09
October	2018	4		1,521	0		1	1,521	2,434	376	2,425	6.76	0.74	6.73
November	2018	3		1,524	0		1	1,525	2,375	376	2,366	6.60	0.74	6.57
December	2018	4		1,528	0		1	1,529	2,245	376	2,238	6.24	0.74	6.22

Table 2. EM&V Data Incremental by Vintage Year		Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
		Net kWh/Participant for IRP			Net kW/Participant for IRP		
		VA	NC	System	VA	NC	System
2014	233	32,161	-	32,161	77.71	-	77.71
2015	627	104,723	-	104,723	28.48	-	28.48
2016	140	4,166	-	4,166	2.00	-	2.00
2017	471	14,195	-	14,195	7.99	-	7.99
2018	58	1,129	1,882	1,137	0.63	0.74	0.63

Table 3. EM&V Data Annualized by Vintage Year		Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
		Net kWh/Participant for IRP			Net kW/Participant for IRP		
		VA	NC	System	VA	NC	System
2014	233	384,159	-	384,159	77.71	-	77.71
2015	627	139,901	-	139,901	28.48	-	28.48
2016	140	6,640	-	6,640	2.00	-	2.00
2017	471	29,401	-	29,401	7.99	-	7.99
2018	58	1,879	4,515.96	1,907	0.63	0.74	0.63

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		IRP Energy Savings/Participant			IRP Capacity Savings/Participant		
		Net kWh/Participant			Net kW/Participant		
		VA	NC	System	VA	NC	System
2014	233	32,161	-	32,161	77.71	-	77.71
2015	860	138,255	-	138,255	34.39	-	34.39
2016	999	47,599	-	47,599	10.52	-	10.52
2017	1,471	35,926	-	35,926	9.55	-	9.55
2018	1,529	26,663	1,881.65	26,563	6.24	0.74	6.22

Appendix C.6 Non-residential Small Business Improvement Program 2016-2018

PROGRAM: Small Business Improvement Program
DSM Phase V Program
Type: Energy Efficiency
Program Measure Life: 14.0 years

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA			NC			System	VA			NC			System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired) [E] = Σ[A] + Σ[-A retired]	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired) [G] = Σ[C] + Σ[-C retired]	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
		[A]	[-A retired]		[C]	[-C retired]									
December	2015							0							0
January	2016	0		0	0		0	0	0		0	0		0	0
February	2016	0		0	0		0	0	0		0	0		0	0
March	2016	0		0	0		0	0	0		0	0		0	0
April	2016	0		0	0		0	0	0		0	0		0	0
May	2016	0		0	0		0	0	0		0	0		0	0
June	2016	0		0	0		0	0	0		0	0		0	0
July	2016	0		0	0		0	0	0		0	0		0	0
August	2016	0		0	0		0	0	0		0	0		0	0
September	2016	0		0	0		0	0	0		0	0		0	0
October	2016	4		4	4		4	4	3,443		3,443	0		0	3,443
November	2016	34		38	0		0	38	11,775		15,218	0		0	15,218
December	2016	29		67	0		0	67	39,516		54,733	0		0	54,733
January	2017	73		140	0		0	140	71,461		126,194	0		0	126,194
February	2017	37		177	0		0	177	26,382		152,576	0		0	152,576
March	2017	92		269	0		0	269	105,881		258,457	0		0	258,457
April	2017	101		370	0		0	370	74,495		332,953	0		0	332,953
May	2017	165		535	0		0	535	143,204		476,157	0		0	476,157
June	2017	101		636	1		1	637	104,754		580,910	1,128		1,128	582,039
July	2017	89		725	1		1	727	126,670		707,581	4,282		5,410	712,990
August	2017	89		814	0		0	816	111,849		819,429	0		5,410	824,839
September	2017	40		854	0		0	856	100,158		919,588	0		5,410	924,997
October	2017	74		928	0		0	930	180,220		1,099,807	0		5,410	1,105,217
November	2017	38		966	0		0	968	107,464		1,207,271	0		5,410	1,212,681
December	2017	38		1,004	5		5	1,011	72,379		1,279,650	8,466		13,876	1,293,526
January	2018	28		1,032	0		0	1,039	69,594		1,349,244	0		13,876	1,363,120
February	2018	77		1,109	1		1	1,117	155,475		1,504,719	3,186		17,061	1,521,781
March	2018	36		1,145	1		1	1,154	86,262		1,590,981	1,877		18,939	1,609,919
April	2018	37		1,182	1		1	1,190	92,830		1,683,810	2,842		21,781	1,705,591
May	2018	38		1,220	3		3	1,233	56,784		1,740,595	18,869		40,650	1,781,245
June	2018	65		1,285	9		9	1,307	464,228		2,204,822	18,388		59,038	2,263,860
July	2018	36		1,321	9		9	1,352	54,977		2,259,799	8,775		67,813	2,327,612
August	2018	47		1,368	0		0	1,399	54,450		2,314,248	0		67,813	2,382,061
September	2018	33		1,401	0		0	1,432	59,410		2,373,658	0		67,813	2,441,471
October	2018	54		1,455	11		11	1,497	109,496		2,483,154	27,214		95,027	2,578,181
November	2018	35		1,490	0		0	1,532	76,093		2,559,247	0		95,027	2,654,274
December	2018	24		1,514	1		1	1,557	53,646		2,612,893	2,242		97,269	2,710,162

Table 2. EM&V Data Incremental by Vintage Year		Program Participants							Gross Incremental Energy (kWh)						
Year		VA IRP			NC IRP			System IRP	VA IRP			NC IRP			System IRP
2016		67						67	73,394						73,394
2017		937					7	944	7,303,773			42,053		7,345,825	
2018		510					36	546	9,321,365			495,598		9,816,964	

Table 3. EM&V Data Annualized by Vintage Year		Program Participants							Gross Annualized Energy (kWh)						
Year		VA IRP			NC IRP			System IRP	VA IRP			NC IRP			System IRP
2016		67						67	656,801						656,801
2017		937					7	944	14,699,005			166,507		14,865,511	
2018		510					36	546	15,998,914			1,000,716		16,999,629	

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Program Participants							Gross Energy (kWh)						
Year		VA IRP			NC IRP			System IRP	VA IRP			NC IRP			System IRP
2016		67						67	73,394						73,394
2017		1,004					7	1,011	7,960,574			42,053		8,002,627	
2018		1,514					43	1,557	24,677,171			662,105		25,339,276	

Appendix C.6 Non-residential Small Business Improvement Program 2016-2018

Table 1		Capacity Savings						Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW						Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		System							
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	VA	NC	System	VA	NC	System
December	2015												
January	2016	0		0	0		0	-	-	-	-	-	-
February	2016	0		0	0		0	-	-	-	-	-	-
March	2016	0		0	0		0	-	-	-	-	-	-
April	2016	0		0	0		0	-	-	-	-	-	-
May	2016	0		0	0		0	-	-	-	-	-	-
June	2016	0		0	0		0	-	-	-	-	-	-
July	2016	0		0	0		0	-	-	-	-	-	-
August	2016	0		0	0		0	-	-	-	-	-	-
September	2016	0		0	0		0	-	-	-	-	-	-
October	2016	7		7	0		0	861	-	861	1.70	-	1.70
November	2016	18		25	0		0	400	-	400	0.67	-	0.67
December	2016	106		132	0		0	817	-	817	1.96	-	1.96
January	2017	175		306	0		0	901	-	901	2.19	-	2.19
February	2017	66		372	0		0	862	-	862	2.10	-	2.10
March	2017	282		654	0		0	961	-	961	2.43	-	2.43
April	2017	199		853	0		0	900	-	900	2.31	-	2.31
May	2017	325		1,178	0		0	890	-	890	2.20	-	2.20
June	2017	271		1,449	0		0	913	1,128	914	2.28	0.00	2.27
July	2017	320		1,769	7		7	976	2,705	981	2.44	3.61	2.44
August	2017	302		2,070	0		0	1,007	2,705	1,011	2.54	3.61	2.55
September	2017	266		2,337	0		0	1,077	2,705	1,081	2.74	3.61	2.74
October	2017	417		2,753	0		0	1,185	2,705	1,188	2.97	3.61	2.97
November	2017	280		3,033	0		0	1,250	2,705	1,253	3.14	3.61	3.14
December	2017	196		3,230	25		33	1,275	1,982	1,279	3.22	4.66	3.23
January	2018	191		3,421	0		33	1,307	1,982	1,312	3.31	4.66	3.32
February	2018	384		3,805	4		37	1,357	2,133	1,362	3.43	4.59	3.44
March	2018	207		4,012	7		44	1,390	2,104	1,395	3.50	4.90	3.51
April	2018	223		4,235	8		52	1,425	2,178	1,431	3.58	5.21	3.59
May	2018	141		4,376	53		105	1,427	3,127	1,445	3.59	8.09	3.63
June	2018	1,241		5,618	49		154	1,716	2,684	1,732	4.37	6.99	4.42
July	2018	146		5,764	21		175	1,711	2,188	1,722	4.36	5.63	4.39
August	2018	150		5,914	0		175	1,692	2,188	1,703	4.32	5.63	4.35
September	2018	137		6,050	0		175	1,694	2,188	1,705	4.32	5.63	4.35
October	2018	290		6,340	72		247	1,707	2,263	1,722	4.36	5.88	4.40
November	2018	205		6,545	0		247	1,718	2,263	1,733	4.39	5.88	4.43
December	2018	161		6,705	5		252	1,726	2,262	1,741	4.43	5.85	4.47

Table 2. EM&V Data Incremental by Vintage Year		Incremental Energy Savings/Participant						Incremental Capacity Savings/Participant		
Vintage Year		Gross Peak Demand (kW)						Gross kWh/Participant for IRP		
		VA IRP		NC IRP		System IRP		VA	NC	System
2016		132				132		1,095	-	1,095
2017		3,098				3,131		7,795	6,007.52	7,782
2018		3,476				3,695		18,277	17,980	17,980

Table 3. EM&V Data Annualized by Vintage Year		Annualized Energy Savings/Participant						Annualized Capacity Savings/Participant		
Vintage Year		Gross Peak Demand (kW)						Gross kWh/Participant for IRP		
		VA IRP		NC IRP		System IRP		VA	NC	System
2016		132				132		9,803	-	9,803
2017		3,098				3,131		15,687	23,787	15,747
2018		3,476				3,695		31,370	27,796	31,135

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		IRP Energy Savings/Participant						IRP Capacity Savings/Participant		
Vintage Year		Gross Peak Demand (kW)						Gross kWh/Participant		
		VA IRP		NC IRP		System IRP		VA	NC	System
2016		132				132		1,095	-	1,095
2017		3,230				3,262		7,929	6,008	7,916
2018		6,705				6,957		16,299	15,398	16,274

Appendix C.7 Non-residential Prescriptive Program 2017-2018

PROGRAM: Nonresidential Prescriptive Program
 DSM Phase VI Program
 Type: Energy Efficiency
 Program Measure Life: 6.3 years (6 years, 4 months)

Table 1		Participation							Energy Savings						
		Program Participants							Gross kWh						
Month	Year	VA		NC		System		System Cum for IRP	VA		NC		System		System Cum for IRP
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]								
December	2015														
January	2016														
February	2016														
March	2016														
April	2016														
May	2016														
June	2016														
July	2016														
August	2016														
September	2016														
October	2016														
November	2016														
December	2016														
January	2017	0			0	0		0	0	0		0	0		0
February	2017	0			0	0		0	0	0		0	0		0
March	2017	0			0	0		0	0	0		0	0		0
April	2017	0			0	0		0	0	0		0	0		0
May	2017	0			0	0		0	0	0		0	0		0
June	2017	0			0	0		0	0	0		0	0		0
July	2017	0			0	0		0	0	0		0	0		0
August	2017	0			0	0		0	0	0		0	0		0
September	2017	0			0	0		0	0	0		0	0		0
October	2017	0			0	0		0	0	0		0	0		0
November	2017	0			0	0		0	0	0		0	0		0
December	2017	4			4	0		4	58			58			58
January	2018	49			53	0		53	12,832			12,890			12,890
February	2018	181			234	0		234	116,318			129,208			129,208
March	2018	115			349	0		349	54,232			183,440			183,440
April	2018	56			405	0		405	31,809			215,249			215,249
May	2018	123			528	0		528	79,394			294,644			294,644
June	2018	100			628	0		628	65,424			360,068			360,068
July	2018	64			692	0		692	88,111			448,179			448,179
August	2018	47			739	0		739	31,801			479,980			479,980
September	2018	83			822	0		822	61,629			541,609			541,609
October	2018	11			833	0		833	9,347			550,956			550,956
November	2018	21			854	11		11	865	3,277		554,233	13,365		567,598
December	2018	15			869	10		21	890	8,339		562,572	5,117	13,365	581,054

Table 2. EM&V Data Incremental by Vintage Year									
Program Participants					Gross Incremental Energy (kWh)				
	VA IRP		NC IRP	System IRP	VA IRP		NC IRP	System IRP	
2016	-		-	-	-		-	-	-
2017	4		0	4	58		0	58	
2018	865		21	886	4,332,329		31,847	4,364,176	

Table 3. EM&V Data Annualized by Vintage Year									
Program Participants					Gross Annualized Energy (kWh)				
	VA IRP		NC IRP	System IRP	VA IRP		NC IRP	System IRP	
2016	-		-	-	-		-	-	-
2017	4		0	4	699		0	699	
2018	865		21	886	6,750,167		211,779	6,971,946	

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)									
Program Participants					Gross Energy (kWh)				
	VA IRP		NC IRP	System IRP	VA IRP		NC IRP	System IRP	
2016	-		-	-	-		-	-	-
2017	4		0	4	58		0	58	
2018	869		21	890	4,333,029		31,847	4,364,875	

Appendix C.7 Non-residential Prescriptive Program 2017-2018

Table 1		Capacity Savings Gross kW						Energy Savings / Participant Gross kWh / Participant for IRP			Capacity Savings / Participant Gross kW / Participant for IRP		
Month	Year	VA		NC		System		VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)						
December	2016												
January	2016												
February	2016												
March	2016												
April	2016												
May	2016												
June	2016												
July	2016												
August	2016												
September	2016												
October	2016												
November	2016												
December	2016												
January	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
February	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
March	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
April	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
May	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
June	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
July	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
August	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
September	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
October	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
November	2017	0.00		0.00	0.00		0.00	0.00	-	-	-	-	-
December	2017	0.08		0.08	0.00		0.00	0.00	15	-	15	0.02	0.02
January	2018	23.16		23	0.00		0.00	23	243	-	243	0.44	0.44
February	2018	366.44		390	0.00		0.00	390	552	-	552	1.67	1.67
March	2018	193.06		583	0.00		0.00	583	526	-	526	1.67	1.67
April	2018	105.86		689	0.00		0.00	689	531	-	531	1.70	1.70
May	2018	176.00		865	0.00		0.00	865	558	-	558	1.64	1.64
June	2018	122.30		987	0.00		0.00	987	573	-	573	1.57	1.57
July	2018	246.56		1,233	0.00		0.00	1,233	648	-	648	1.78	1.78
August	2018	1,634.97		2,868	0.00		0.00	2,868	649	-	649	3.88	3.88
September	2018	145.35		3,014	0.00		0.00	3,014	659	-	659	3.67	3.67
October	2018	44.53		3,058	0.00		0.00	3,058	661	-	661	3.67	3.67
November	2018	3.83		3,062	18.25		18	3,080	649	1,215	656	3.59	1.66
December	2018	21.54		3,084	7.00		25	3,109	647	880	653	3.55	1.20

Table 2. EM&V Data Incremental by Vintage Year						Incremental Energy Savings/Participant Gross kWh/Participant for IRP			Incremental Capacity Savings/Participant Gross kW/Participant for IRP		
Gross Peak Demand (kW)						Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP		NC IRP	System IRP	VA	NC	System	VA	NC	System
2016		-		-	0	-	-	-	-	-	-
2017		0.08		-	0.08	15	-	15	0.02	-	0.02
2018		3,084		25	3,109	5,008	1,516.50	4,926	3.56	1.20	3.51

Table 3. EM&V Data Annualized by Vintage Year						Annualized Energy Savings/Participant Gross kWh/Participant for IRP			Annualized Capacity Savings/Participant Gross kW/Participant for IRP		
Gross Peak Demand (kW)						Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP		NC IRP	System IRP	VA	NC	System	VA	NC	System
2016		-		-	-	-	-	-	-	-	-
2017		0.08		0.00	0.08	175	-	175	0.02	-	0.02
2018		3,084		25	3,109	7,804	###	7,869	3.56	1.20	3.51

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)						IRP Energy Savings/Participant Gross kWh/Participant			IRP Capacity Savings/Participant Gross kW/Participant		
Gross Peak Demand (kW)						Gross kWh/Participant			Gross kW/Participant		
		VA IRP		NC IRP	System IRP	VA	NC	System	VA	NC	System
2016		-		-	-	-	-	-	-	-	-
2017		0.08		0	0	15	-	15	0.02	-	0.02
2018		3,084		25	3,109	4,986	1,517	4,904	3.55	1.20	3.49

Appendix C.8 Residential Heat Pump Upgrade Program 2012-2018

PROGRAM: Residential Heat Pump Upgrade
 DSM Phase II Program
 Type: Energy Efficiency
 Program Measure Life: 15.0 years

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA		NC			System	VA		NC			System		
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]	E+G							
October	2012	16		16				16	3,417		3,417				3,417
November	2012	33		49				49	6,826		10,244				10,244
December	2012	37		86				86	6,377		16,621				16,621
January	2013	34		120				120	4,859		21,479				21,479
February	2013	165		285				285	28,816		50,295				50,295
March	2013	202		487				487	34,445		84,740				84,740
April	2013	149		636				636	24,175		108,915				108,915
May	2013	261		897				897	44,920		153,835				153,835
June	2013	309		1,206				1,206	52,727		206,562				206,562
July	2013	465		1,671				1,671	80,429		286,990				286,990
August	2013	343		2,014				2,014	56,622		343,612				343,612
September	2013	415		2,429				2,429	70,495		414,108				414,108
October	2013	452		2,881				2,881	69,869		483,977				483,977
November	2013	176		3,057				3,057	30,779		514,756				514,756
December	2013	324		3,381				3,381	57,339		572,095				572,095
January	2014	284		3,665	0		0	3,665	44,016		616,112	0		0	616,112
February	2014	281		3,946	0		0	3,946	40,377		656,489	0		0	656,489
March	2014	254		4,200	0		0	4,200	38,899		695,388	0		0	695,388
April	2014	298		4,498	0		0	4,498	46,218		741,605	0		0	741,605
May	2014	241		4,739	0		0	4,739	34,718		776,323	0		0	776,323
June	2014	322		5,061	1		1	5,062	49,271		825,594	330		330	825,924
July	2014	586		5,647	0		1	5,648	63,943		889,537	0		330	889,867
August	2014	334		5,981	4		5	5,986	38,350		927,887	537		867	928,754
September	2014	418		6,399	5		10	6,409	46,188		974,075	837		1,704	975,779
October	2014	243		6,642	9		19	6,661	27,948		1,002,023	767		2,472	1,004,495
November	2014	169		6,811	12		31	6,842	18,038		1,020,061	1,496		3,968	1,024,029
December	2014	219		7,030	13		44	7,074	24,284		1,044,345	2,070		6,037	1,050,383
January	2015	301		7,331	34		78	7,409	16,285		1,060,631	2,013		8,051	1,068,681
February	2015	327		7,658	15		93	7,751	17,549		1,078,179	3,274		11,325	1,089,504
March	2015	258		7,916	20		113	8,029	12,676		1,090,856	428		11,753	1,102,609
April	2015	335		8,251	58		171	8,422	14,244		1,105,100	2,635		14,387	1,119,488
May	2015	258		8,509	57		228	8,737	13,679		1,118,780	2,502		16,889	1,135,669
June	2015	694		9,203	99		327	9,530	32,176		1,150,956	2,970		19,859	1,170,814
July	2015	459		9,662	83		410	10,072	22,577		1,173,533	2,536		22,395	1,195,928
August	2015	445		10,107	48		458	10,565	19,261		1,192,794	1,189		23,584	1,216,378
September	2015	412		10,519	103		561	11,080	18,266		1,211,060	3,022		26,606	1,237,666
October	2015	322		10,841	43		604	11,445	13,549		1,224,609	1,651		28,257	1,252,866
November	2015	289		11,130	29		633	11,763	14,223		1,238,832	987		29,243	1,268,075
December	2015	110		11,240	8		641	11,881	6,010		1,244,841	308		29,552	1,274,393
January	2016	420		11,660	23		664	12,324	22,066		1,266,907	817		30,369	1,297,276
February	2016	444		12,104	72		736	12,840	22,639		1,289,546	3,600		33,969	1,323,515
March	2016	415		12,519	48		784	13,303	17,105		1,306,651	1,545		35,514	1,342,164
April	2016	418		12,937	65		849	13,786	17,926		1,324,576	1,732		37,245	1,361,822
May	2016	384		13,321	44		893	14,214	18,880		1,343,456	1,668		38,913	1,382,369
June	2016	499		13,820	88		981	14,801	22,911		1,366,368	4,151		43,064	1,409,432
July	2016	598		14,418	70		1,051	15,469	27,659		1,394,026	2,176		45,241	1,439,267
August	2016	729		15,147	105		1,156	16,303	33,806		1,427,833	3,910		49,051	1,476,984
September	2016	414		15,561	37		1,193	16,754	20,800		1,448,632	1,380		50,531	1,499,163
October	2016	392		15,953	57		1,250	17,203	17,989		1,466,621	2,161		52,692	1,519,313
November	2016	470		16,423	46		1,296	17,719	24,720		1,491,341	2,901		55,593	1,546,934
December	2016	212		16,635	10		1,306	17,941	9,521		1,500,861	423		56,016	1,556,878
January	2017	828		17,463	76		1,382	18,845	33,627		1,534,488	3,507		59,523	1,594,012
February	2017	235		17,698	36		1,418	19,116	9,579		1,544,067	1,335		60,858	1,604,925
March	2017	86		17,784	6		1,424	19,208	2,956		1,547,023	416		61,274	1,608,297
April	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
May	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
June	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
July	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
August	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
September	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
October	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
November	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
December	2017	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297

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Appendix C.8 Residential Heat Pump Upgrade Program 2012-2018

Table 1		Capacity Savings Gross kW							Energy Savings / Participant Gross kWh/Participant for IRP			Capacity Savings / Participant Gross kW/Participant for IRP		
Month	Year	VA		NC			System		VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP						
October	2012	10		10				10	214			0.61		0.61
November	2012	23		33				33	209			0.67		0.67
December	2012	26		59				59	193			0.69		0.69
January	2013	24		83				83	179			0.69		0.69
February	2013	125		208				208	176			0.73		0.73
March	2013	151		358				358	174			0.74		0.74
April	2013	113		471				471	171			0.74		0.74
May	2013	206		677				677	171			0.76		0.76
June	2013	234		911				911	171			0.76		0.76
July	2013	328		1,239				1,239	172			0.74		0.74
August	2013	243		1,482				1,482	171			0.74		0.74
September	2013	297		1,779				1,779	170			0.73		0.73
October	2013	310		2,089				2,089	168			0.73		0.73
November	2013	116		2,205				2,205	168			0.72		0.72
December	2013	248		2,453				2,453	169			0.73		0.73
January	2014	217		2,670	0		0	2,670	168	-	168	0.73	-	0.73
February	2014	193		2,863	0		0	2,863	166	-	166	0.73	-	0.73
March	2014	192		3,055	0		0	3,055	166	-	166	0.73	-	0.73
April	2014	219		3,275	0		0	3,275	165	-	165	0.73	-	0.73
May	2014	178		3,453	0		0	3,453	164	-	164	0.73	-	0.73
June	2014	242		3,695	1		1	3,696	163	330	163	0.73	0.84	0.73
July	2014	249		3,943	0		1	3,944	158	330	158	0.70	1.00	0.70
August	2014	158		4,102	1		2	4,104	155	173	155	0.69	0.42	0.69
September	2014	190		4,291	1		3	4,294	152	170	152	0.67	0.28	0.67
October	2014	133		4,424	4		7	4,431	151	130	151	0.67	0.34	0.67
November	2014	88		4,512	2		8	4,521	150	128	150	0.66	0.27	0.66
December	2014	110		4,622	11		19	4,641	149	137	148	0.66	0.44	0.66
January	2015	38		4,660	6		25	4,685	145	103	144	0.64	0.32	0.63
February	2015	36		4,696	5		30	4,726	141	122	141	0.61	0.32	0.61
March	2015	32		4,727	2		32	4,759	138	104	137	0.60	0.28	0.59
April	2015	36		4,763	5		36	4,800	134	84	133	0.58	0.21	0.57
May	2015	34		4,797	6		42	4,840	131	74	130	0.56	0.19	0.55
June	2015	75		4,873	8		51	4,923	125	61	123	0.53	0.15	0.52
July	2015	48		4,921	7		57	4,979	121	55	119	0.51	0.14	0.49
August	2015	47		4,968	3		61	5,029	118	51	115	0.49	0.13	0.48
September	2015	43		5,011	8		69	5,079	115	47	112	0.48	0.12	0.46
October	2015	33		5,044	4		73	5,117	113	47	109	0.47	0.12	0.45
November	2015	35		5,079	3		76	5,155	111	46	108	0.46	0.12	0.44
December	2015	15		5,094	1		77	5,171	111	46	107	0.45	0.12	0.44
January	2016	46		5,140	2		79	5,219	109	46	105	0.44	0.12	0.42
February	2016	58		5,198	9		88	5,286	107	46	103	0.43	0.12	0.41
March	2016	45		5,243	5		93	5,336	104	45	101	0.42	0.12	0.40
April	2016	47		5,290	6		99	5,390	102	44	99	0.41	0.12	0.39
May	2016	44		5,334	5		104	5,438	101	44	97	0.40	0.12	0.38
June	2016	59		5,392	9		114	5,506	99	44	95	0.39	0.12	0.37
July	2016	69		5,461	6		119	5,581	97	43	93	0.38	0.11	0.36
August	2016	83		5,544	11		130	5,674	94	43	91	0.37	0.11	0.35
September	2016	46		5,590	3		134	5,724	93	42	89	0.36	0.11	0.34
October	2016	46		5,637	5		138	5,775	92	42	88	0.35	0.11	0.34
November	2016	59		5,695	6		144	5,839	91	43	87	0.35	0.11	0.33
December	2016	23		5,719	1		145	5,864	90	43	87	0.34	0.11	0.33
January	2017	94		5,813	11		156	5,969	88	43	85	0.33	0.11	0.32
February	2017	25		5,838	3		159	5,997	87	43	84	0.33	0.11	0.31
March	2017	11		5,848	1		160	6,008	87	43	84	0.33	0.11	0.31
April	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
May	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
June	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
July	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
August	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
September	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
October	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
November	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
December	2017	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31

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Appendix C.8 Residential Heat Pump Upgrade Program 2012-2018

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Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA		NC		System			VA		NC		System		
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
January	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
February	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
March	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
April	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
May	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
June	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
July	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
August	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
September	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
October	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
November	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297
December	2018	0		17,784	0		1,424	19,208	0		1,547,023	0		61,274	1,608,297

Table 2. EM&V Data Incremental by Vintage Year													
	Program Participants						Gross Incremental Energy (kWh)						
			VA IRP		NC IRP	System IRP			VA IRP		NC IRP	System IRP	
2012			86		-	86			30,282		-	30,282	
2013			3,295		-	3,295			3,041,917		-	3,041,917	
2014			3,649		44	3,693			3,304,296		15,708	3,320,005	
2015			4,210		597	4,807			1,358,027		169,451	1,527,477	
2016			5,395		665	6,060			1,688,721		173,680	1,862,400	
2017			1,149		118	1,267			538,445		60,926	599,371	
2018			0		0	0			0		0	0	

Table 3. EM&V Data Annualized by Vintage Year													
Program Participants							Gross Annualized Energy (kWh/year)						
			VA IRP		NC IRP	System IRP			VA IRP		NC IRP	System IRP	
2012			86		-	86			199,447		-	199,447	
2013			3,295		-	3,295			6,665,695		-	6,665,695	
2014			3,649		44	3,693			5,667,002		72,449	5,739,451	
2015			4,210		597	4,807			2,405,953		282,170	2,688,124	
2016			5,395		665	6,060			3,072,240		317,574	3,389,814	
2017			1,149		118	1,267			553,935		63,092	617,028	
2018			0		0	0			0		0	0	

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)													
	Program Participants						Gross Energy (kWh)						
			VA IRP		NC IRP	System IRP			VA IRP		NC IRP	System IRP	
2012			86		-	86			30,282		-	30,282	
2013			3,381		-	3,381			3,241,365		-	3,241,365	
2014			7,030		44	7,074			10,169,439		15,708	10,185,147	
2015			11,240		641	11,881			13,890,171		241,899	14,132,070	
2016			16,635		1,306	17,941			16,626,818		528,299	17,155,117	
2017			17,784		1,424	19,208			18,548,782		733,120	19,281,902	
2018			17,784		1,424	19,208			18,564,272		735,286	19,299,558	

Appendix C.8 Residential Heat Pump Upgrade Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		System			VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP						
January	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
February	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
March	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
April	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
May	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
June	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
July	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
August	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
September	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
October	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
November	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31
December	2018	0		5,848	0		160	6,008	87	43	84	0.33	0.11	0.31

Table 2. EM&V Data Incremental by Vintage Year							Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
Gross Peak Demand (kW)							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP			NC IRP	System IRP	VA	NC	System	VA	NC	System
2012		59			-	59	352	-	352	0.69	-	0.69
2013		2,394			-	2,394	923	-	923	0.73	-	0.73
2014		2,169			19	2,188	906	357	899	0.59	0.44	0.59
2015		472			58	530	323	284	318	0.11	0.10	0.11
2016		624			69	693	313	261	307	0.12	0.10	0.11
2017		130			14	144	469	516.32	473	0.11	0.12	0.11
2018		0			0	0	-	-	-	-	-	-

Table 3. EM&V Data Annualized by Vintage Year							Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
Gross Peak Demand (kW)							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP			NC IRP	System IRP	VA	NC	System	VA	NC	System
2012		59			-	59	2,319	-	2,319	0.69	-	0.69
2013		2,394			-	2,394	2,023	-	2,023	0.73	-	0.73
2014		2,169			19	2,188	1,553	1,647	1,554	0.59	0.44	0.59
2015		472			58	530	571	473	559	0.11	0.10	0.11
2016		624			69	693	569	478	559	0.12	0.10	0.11
2017		130			14	144	482	535	487	0.11	0.12	0.11
2018		0			0	0	-	-	-	-	-	-

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)							IRP Energy Savings/Participant			IRP Capacity Savings/Participant		
Gross Peak Demand (kW)							Gross kWh/Participant			Gross kW/Participant		
		VA IRP			NC IRP	System IRP	VA	NC	System	VA	NC	System
2012		59			-	59	352	-	352	0.69	-	0.69
2013		2,453			-	2,453	959	-	959	0.73	-	0.73
2014		4,622			19	4,641	1,447	357	1,440	0.66	0.44	0.66
2015		5,094			77	5,171	1,236	377	1,189	0.45	0.12	0.44
2016		5,719			145	5,864	1,000	405	956	0.34	0.11	0.33
2017		5,848			160	6,008	1,043	515	1,004	0.33	0.11	0.31
2018		5,848			160	6,008	1,044	516	1,005	0.33	0.11	0.31

Appendix C.9 Residential Heat Pump Tune-Up Program 2012-2018

PROGRAM: Residential Heat Pump Tune-Up
 DSM Phase II Program
 Type: Energy Efficiency
 Program Measure Life: 5.0 years

Table 1		Participation							Energy Savings						
		Program Participants							Gross kWh						
Month	Year	VA			NC			System	VA			NC			System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]	E+G							
October	2012	139		139				139	3,572		3,572				3,572
November	2012	577		716				716	14,513		18,085				18,085
December	2012	493		1,209				1,209	12,319		30,405				30,405
January	2013	536		1,745				1,745	13,583		43,988				43,988
February	2013	2,124		3,869				3,869	53,678		97,666				97,666
March	2013	2,194		6,063				6,063	53,912		151,578				151,578
April	2013	876		6,939				6,939	21,668		173,246				173,246
May	2013	1,779		8,718				8,718	43,704		216,950				216,950
June	2013	9,354		9,354				9,354	30,932		247,882				247,882
July	2013	891		10,845				10,845	22,036		269,918				269,918
August	2013	570		11,415				11,415	13,974		283,891				283,891
September	2013	1,275		12,690				12,690	31,243		315,134				315,134
October	2013	1,408		14,098				14,098	34,370		349,505				349,505
November	2013	1,323		15,421				15,421	31,563		381,068				381,068
December	2013	1,424		16,845				16,845	33,154		414,221				414,221
January	2014	995		17,840	0		0	17,840	20,832		435,054	0		0	435,054
February	2014	1,178		19,018	0		0	19,018	25,304		460,358	0		0	460,358
March	2014	949		19,967	0		0	19,967	19,914		480,272	0		0	480,272
April	2014	1,865		21,832	0		0	21,832	37,986		518,258	0		0	518,258
May	2014	2,465		24,297	3		3	24,300	52,729		570,987	114		114	571,101
June	2014	3,699		27,996	3		6	28,002	76,005		646,992	102		216	647,207
July	2014	3,427		31,423	2		8	31,431	73,221		720,213	46		262	720,475
August	2014	2,727		34,150	17		25	34,175	56,768		776,981	378		640	777,621
September	2014	2,248		36,398	14		39	36,437	45,321		822,302	301		941	823,243
October	2014	1,621		38,019	82		121	38,140	35,573		857,874	1,766		2,706	860,581
November	2014	1,833		39,852	263		384	40,236	41,709		899,584	5,665		8,371	907,955
December	2014	1,680		41,532	197		581	42,113	37,137		936,720	4,533		12,905	949,625
January	2015	1,968		43,500	448		1,029	44,529	37,286		974,006	9,510		22,415	996,421
February	2015	1,931		45,431	316		1,345	46,776	34,162		1,008,168	6,487		28,902	1,037,070
March	2015	1,219		46,650	254		1,599	48,249	22,609		1,030,776	5,505		34,407	1,065,184
April	2015	3,141		49,791	342		1,941	51,732	54,329		1,085,106	7,479		41,886	1,126,992
May	2015	2,128		51,919	313		2,254	54,173	37,020		1,122,126	6,603		48,490	1,170,616
June	2015	2,085		54,004	523		2,777	56,781	35,641		1,157,767	11,242		59,732	1,217,499
July	2015	2,133		56,137	282		3,059	59,196	34,169		1,191,936	6,006		65,738	1,257,674
August	2015	1,931		58,068	171		3,230	61,298	31,994		1,223,930	3,569		69,307	1,293,237
September	2015	1,873		59,941	336		3,566	63,507	32,713		1,256,642	7,067		76,374	1,333,016
October	2015	1,900		61,841	169		3,735	65,576	34,727		1,291,370	3,642		80,016	1,371,386
November	2015	1,866		63,707	102		3,837	67,544	32,957		1,324,327	2,167		82,183	1,406,510
December	2015	1,939		65,646	51		3,888	69,534	34,654		1,358,981	1,030		83,212	1,442,193
January	2016	1,761		67,407	94		3,982	71,389	30,996		1,389,976	2,058		85,271	1,475,247
February	2016	2,101		69,508	170		4,152	73,660	37,913		1,427,890	3,405		88,676	1,516,565
March	2016	1,113		70,621	117		4,269	74,890	19,660		1,447,549	2,489		91,165	1,538,714
April	2016	1,726		72,347	159		4,428	76,775	30,907		1,478,456	3,287		94,452	1,572,908
May	2016	1,550		73,897	96		4,524	78,421	29,652		1,508,108	2,009		96,461	1,604,569
June	2016	1,649		75,546	179		4,703	80,249	31,531		1,539,639	3,809		100,270	1,639,909
July	2016	1,259		76,805	100		4,803	81,608	22,980		1,562,619	2,244		102,514	1,665,133
August	2016	1,754		78,559	113		4,916	83,475	30,668		1,593,287	2,436		104,950	1,698,237
September	2016	1,313		79,872	54		4,970	84,842	21,891		1,615,178	1,075		106,024	1,721,202
October	2016	1,644		81,516	54		5,024	86,540	26,927		1,642,105	1,121		107,146	1,749,251
November	2016	2,249		83,765	71		5,095	88,860	37,956		1,680,061	1,594		108,740	1,788,801
December	2016	889		84,654	67		5,162	89,816	15,198		1,695,259	1,363		110,102	1,805,361
January	2017	2,221		86,875	80		5,242	92,117	37,047		1,732,306	1,696		111,799	1,844,105
February	2017	219		87,094	29		5,271	92,365	4,049		1,736,355	592		112,390	1,849,745
March	2017	32		87,126	16		5,287	92,413	637		1,736,992	383		112,773	1,849,765
April	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
May	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
June	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
July	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
August	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
September	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
October	2017	0		87,126	0		5,287	92,413	0		1,736,992	0		112,773	1,849,765
November	2017	0	-139	86,987	0		5,287	92,274	0	-3,572	1,733,420	0		112,773	1,846,193
December	2017	0	-577	86,410	0		5,287	91,697	0	-14,513	1,718,907	0		112,773	1,831,680

Appendix C.9 Residential Heat Pump Tune-Up Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC			System		VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP						
October	2012	29		29				29	26		26	0.21		0.21
November	2012	119		148				148	25		25	0.21		0.21
December	2012	101		250				250	25		25	0.21		0.21
January	2013	361		361				361	25		25	0.21		0.21
February	2013	440		801				801	25		25	0.21		0.21
March	2013	444		1,245				1,245	25		25	0.21		0.21
April	2013	179		1,424				1,424	25		25	0.21		0.21
May	2013	362		1,786				1,786	25		25	0.20		0.20
June	2013	257		2,042				2,042	25		25	0.21		0.21
July	2013	181		2,224				2,224	25		25	0.21		0.21
August	2013	115		2,339				2,339	25		25	0.20		0.20
September	2013	256		2,595				2,595	25		25	0.20		0.20
October	2013	282		2,877				2,877	25		25	0.20		0.20
November	2013	260		3,137				3,137	25		25	0.20		0.20
December	2013	273		3,410				3,410	25		25	0.20		0.20
January	2014	133		3,543	0	0	0	3,543	24	-	24	0.20	-	0.20
February	2014	160		3,703	0	0	0	3,703	24	-	24	0.19	-	0.19
March	2014	126		3,829	0	0	0	3,829	24	-	24	0.19	-	0.19
April	2014	237		4,067	0	0	0	4,067	24	-	24	0.19	-	0.19
May	2014	325		4,392	1	1	1	4,392	24	38	24	0.18	0.24	0.18
June	2014	473		4,865	1	1	1	4,867	23	36	23	0.17	0.22	0.17
July	2014	446		5,312	0	2	2	5,313	23	33	23	0.17	0.20	0.17
August	2014	347		5,659	2	4	4	5,663	23	26	23	0.17	0.16	0.17
September	2014	282		5,941	2	6	6	5,946	23	24	23	0.16	0.15	0.16
October	2014	210		6,150	11	17	17	6,167	23	22	23	0.16	0.14	0.16
November	2014	239		6,389	36	53	53	6,442	23	22	23	0.16	0.14	0.16
December	2014	219		6,608	27	80	80	6,688	23	22	23	0.16	0.14	0.16
January	2015	2,021		8,629	84	164	164	8,793	22	22	22	0.20	0.16	0.20
February	2015	306		8,935	58	222	222	9,157	22	21	22	0.20	0.16	0.20
March	2015	203		9,139	49	270	270	9,409	22	22	22	0.20	0.17	0.20
April	2015	483		9,621	66	337	337	9,958	22	22	22	0.19	0.17	0.19
May	2015	332		9,953	59	396	396	10,349	22	22	22	0.19	0.18	0.19
June	2015	318		10,272	100	495	495	10,767	21	22	21	0.19	0.18	0.19
July	2015	298		10,570	53	549	549	11,118	21	21	21	0.19	0.18	0.19
August	2015	282		10,851	32	581	581	11,432	21	21	21	0.19	0.18	0.19
September	2015	291		11,143	63	644	644	11,786	21	21	21	0.19	0.18	0.19
October	2015	308		11,450	33	677	677	12,127	21	21	21	0.19	0.18	0.18
November	2015	289		11,739	19	696	696	12,435	21	21	21	0.18	0.18	0.18
December	2015	304		12,043	9	705	705	12,749	21	21	21	0.18	0.18	0.18
January	2016	275		12,318	18	723	723	13,042	21	21	21	0.18	0.18	0.18
February	2016	336		12,654	30	754	754	13,408	21	21	21	0.18	0.18	0.18
March	2016	175		12,829	22	776	776	13,605	20	21	21	0.18	0.18	0.18
April	2016	274		13,103	29	805	805	13,908	20	21	20	0.18	0.18	0.18
May	2016	266		13,369	18	823	823	14,192	20	21	20	0.18	0.18	0.18
June	2016	284		13,653	34	858	858	14,511	20	21	20	0.18	0.18	0.18
July	2016	205		13,858	20	878	878	14,736	20	21	20	0.18	0.18	0.18
August	2016	269		14,128	22	900	900	15,027	20	21	20	0.18	0.18	0.18
September	2016	196		14,323	10	909	909	15,233	20	21	20	0.18	0.18	0.18
October	2016	243		14,566	10	919	919	15,485	20	21	20	0.18	0.18	0.18
November	2016	345		14,911	14	933	933	15,845	20	21	20	0.18	0.18	0.18
December	2016	135		15,046	12	946	946	15,992	20	21	20	0.18	0.18	0.18
January	2017	347		15,393	16	962	962	16,354	20	21	20	0.18	0.18	0.18
February	2017	38		15,431	5	967	967	16,398	20	21	20	0.18	0.18	0.18
March	2017	6		15,437	4	971	971	16,407	20	21	20	0.18	0.18	0.18
April	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
May	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
June	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
July	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
August	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
September	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
October	2017	0		15,437	0	971	971	16,407	20	21	20	0.18	0.18	0.18
November	2017	0	-29	15,407	0	971	971	16,378	20	21	20	0.18	0.18	0.18
December	2017	0	-119	15,288	0	971	971	16,259	20	21	20	0.18	0.18	0.18

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Appendix C.9 Residential Heat Pump Tune-Up Program 2012-2018

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA		NC		System			VA		NC		System		
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
January	2018	0	-493	85,917	0	0	5,287	91,204	0	-12,319	1,706,588	0	0	112,773	1,819,361
February	2018	0	-536	85,381	0	0	5,287	90,668	0	-13,583	1,693,004	0	0	112,773	1,805,777
March	2018	0	-2,124	83,257	0	0	5,287	88,544	0	-53,678	1,639,326	0	0	112,773	1,752,099
April	2018	0	-2,194	81,063	0	0	5,287	86,350	0	-53,912	1,585,414	0	0	112,773	1,698,187
May	2018	0	-876	80,187	0	0	5,287	85,474	0	-21,668	1,563,746	0	0	112,773	1,676,519
June	2018	0	-1,779	78,408	0	0	5,287	83,695	0	-43,704	1,520,042	0	0	112,773	1,632,815
July	2018	0	-1,236	77,172	0	0	5,287	82,459	0	-30,932	1,489,110	0	0	112,773	1,601,883
August	2018	0	-891	76,281	0	0	5,287	81,568	0	-22,036	1,467,074	0	0	112,773	1,579,848
September	2018	0	-570	75,711	0	0	5,287	80,998	0	-13,974	1,453,101	0	0	112,773	1,565,874
October	2018	0	-1,275	74,436	0	0	5,287	79,723	0	-31,243	1,421,858	0	0	112,773	1,534,631
November	2018	0	-1,408	73,028	0	0	5,287	78,315	0	-34,370	1,387,488	0	0	112,773	1,500,261
December	2018	0	-1,323	71,705	0	0	5,287	76,992	0	-31,563	1,355,924	0	0	112,773	1,468,698

Table 2. EM&V Data Incremental by Vintage Year		Program Participants							Gross Incremental Energy (kWh)						
		VA		NC		System			VA		NC		System		
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		1,209		-		1,209			52,062		-		52,062		
2013		15,636		-		15,636			2,580,193		-		2,580,193		
2014		24,687		581		25,268			3,154,939		26,155		3,181,094		
2015		24,114		3,307		27,421			2,784,491		537,806		3,322,297		
2016		19,008		1,274		20,282			2,272,360		197,221		2,469,580		
2017		1,756		125		1,881			473,818		30,693		504,511		
2018		-14,705		0		-14,705			-2,344,206		0		-2,344,206		

Table 3. EM&V Data Annualized by Vintage Year		Program Participants							Gross Annualized Energy (kWh/year)						
		VA		NC		System			VA		NC		System		
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		1,209		-		1,209			364,856		-		364,856		
2013		15,636		-		15,636			4,605,801		-		4,605,801		
2014		24,687		581		25,268			6,269,969		154,857		6,424,846		
2015		24,114		3,307		27,421			5,067,124		843,691		5,910,815		
2016		19,008		1,274		20,282			4,035,338		322,679		4,358,017		
2017		1,756		125		1,881			283,774		32,050		315,824		
2018		-14,705		0		-14,705			-4,355,787		0		-4,355,787		

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Program Participants							Gross Energy (kWh)						
		VA		NC		System			VA		NC		System		
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		1,209		-		1,209			52,062		-		52,062		
2013		16,845		-		16,845			2,945,048		-		2,945,048		
2014		41,532		581		42,113			8,125,595		26,155		8,151,750		
2015		65,646		3,888		69,534			14,025,136		692,663		14,717,799		
2016		84,654		5,162		89,816			18,580,129		1,195,769		19,775,897		
2017		86,410		5,287		91,697			20,816,925		1,351,920		22,168,845		
2018		71,705		5,287		76,992			18,282,675		1,353,277		19,635,952		

Appendix C.9 Residential Heat Pump Tune-Up Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		System			VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	Cum for IRP						
January	2018	0	-101	15,187	0		971	16,158	20	21	20	0.18	0.18	0.18
February	2018	0	-111	15,076	0		971	16,046	20	21	20	0.18	0.18	0.18
March	2018	0	-440	14,636	0		971	15,606	20	21	20	0.18	0.18	0.18
April	2018	0	-444	14,192	0		971	15,163	20	21	20	0.18	0.18	0.18
May	2018	0	-179	14,013	0		971	14,983	20	21	20	0.17	0.18	0.18
June	2018	0	-362	13,651	0		971	14,622	19	21	20	0.17	0.18	0.17
July	2018	0	-257	13,394	0		971	14,365	19	21	19	0.17	0.18	0.17
August	2018	0	-181	13,213	0		971	14,183	19	21	19	0.17	0.18	0.17
September	2018	0	-115	13,098	0		971	14,068	19	21	19	0.17	0.18	0.17
October	2018	0	-256	12,842	0		971	13,812	19	21	19	0.17	0.18	0.17
November	2018	0	-282	12,559	0		971	13,530	19	21	19	0.17	0.18	0.17
December	2018	0	-260	12,300	0		971	13,270	19	21	19	0.17	0.18	0.17

Table 2. EM&V Data Incremental by Vintage Year								Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
Gross Peak Demand (kW)								Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP			NC IRP	System IRP		VA	NC	System	VA	NC	System
2012		250			-	250		43	-	43	0.21	-	0.21
2013		3,160			-	3,160		165	-	165	0.20	-	0.20
2014		3,198			80	3,278		128	45	126	0.13	0.14	0.13
2015		5,435			625	6,061		115	163	121	0.23	0.19	0.22
2016		3,003			241	3,243		120	155	122	0.16	0.19	0.16
2017		242			25	267		270	245.54	268	0.14	0.20	0.14
2018		-2,988			0	-2,988		159	-	159	0.20	-	0.20

Table 3. EM&V Data Annualized by Vintage Year								Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
Gross Peak Demand (kW)								Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA IRP			NC IRP	System IRP		VA	NC	System	VA	NC	System
2012		250			-	250		302	-	302	0.21	-	0.21
2013		3,160			-	3,160		295	-	295	0.20	-	0.20
2014		3,198			80	3,278		254	267	254	0.13	0.14	0.13
2015		5,435			625	6,061		210	255	216	0.23	0.19	0.22
2016		3,003			241	3,243		212	253	215	0.16	0.19	0.16
2017		242			25	267		162	256	168	0.14	0.20	0.14
2018		-2,988			0	-2,988		296	-	296	0.20	-	0.20

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)								IRP Energy Savings/Participant			IRP Capacity Savings/Participant		
Gross Peak Demand (kW)								Gross kWh/Participant			Gross kW/Participant		
		VA IRP			NC IRP	System IRP		VA	NC	System	VA	NC	System
2012		250			-	250		43	-	43	0.21	-	0.21
2013		3,410			-	3,410		175	-	175	0.20	-	0.20
2014		6,608			80	6,688		196	45	194	0.16	0.14	0.16
2015		12,043			705	12,749		214	178	212	0.18	0.18	0.18
2016		15,046			946	15,992		219	232	220	0.18	0.18	0.18
2017		15,288			971	16,259		241	256	242	0.18	0.18	0.18
2018		12,300			971	13,270		255	256	255	0.17	0.18	0.17

Appendix C.10 Residential Duct Sealing Program 2012-2018

PROGRAM: Residential Duct Sealing
DSM Phase II Program
Type: Energy Efficiency
Program Measure Life: 18.0 years

Table 1		Participation Program Participants								Energy Savings Gross kWh							
Month	Year	VA		NC		System		VA		NC		System		VA		NC	
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]										
October	2012	2		2				2		264			264				264
November	2012	6		8				8		577			841				841
December	2012	0		8				8		0			841				841
January	2013	0		8				8		0			841				841
February	2013	16		24				24		2,888			3,729				3,729
March	2013	4		28				28		1,700			3,899				3,899
April	2013	23		51				51		5,615			6,865				6,865
May	2013	17		68				68		1,250			8,039				8,039
June	2013	11		79				79		1,175			8,355				8,355
July	2013	4		83				83		315			9,039				9,039
August	2013	7		90				90		684			9,362				9,362
September	2013	3		93				93		323			9,897				9,897
October	2013	10		103				103		535			10,307				10,307
November	2013	6		109				109		410			10,905				10,905
December	2013	7		116				116		599			11,645				11,645
January	2014	15		131	0		0	131		740			11,915				11,915
February	2014	6		137	0		0	137		270			12,084				12,084
March	2014	3		140	0		0	140		168			12,649				12,649
April	2014	9		149	0		0	149		565			13,022				13,022
May	2014	6		155	0		0	155		373			13,500				13,500
June	2014	6		161	0		0	161		479			13,930				13,930
July	2014	9		170	0		0	170		429			14,193				14,193
August	2014	5		175	0		0	175		263			16,806				16,806
September	2014	26		201	0		0	201		2,612			21,355				21,355
October	2014	82		283	0		0	283		4,550			27,047				27,047
November	2014	117		400	0		0	400		5,692			32,953				32,953
December	2014	117		517	0		0	517		5,906			38,401				38,401
January	2015	106		623	1		1	624		5,448			46,043				46,043
February	2015	163		786	28		28	815		7,642			52,329				52,329
March	2015	132		918	85		85	1,032		6,286			61,428				61,428
April	2015	201		1,119	60		60	1,179		9,099			72,720				72,720
May	2015	233		1,352	77		77	1,429		11,291			84,855				84,855
June	2015	262		1,614	59		59	1,673		12,135			91,850				91,850
July	2015	168		1,782	12		12	1,794		6,995			100,410				100,410
August	2015	185		1,967	0		0	1,967		8,560			106,368				106,368
September	2015	134		2,101	0		0	2,101		5,958			109,382				109,382
October	2015	68		2,169	1		1	2,170		3,014			112,130				112,130
November	2015	59		2,228	0		0	2,228		2,748			118,311				118,311
December	2015	149		2,377	0		0	2,377		6,181			121,458				121,458
January	2016	53		2,430	1		1	2,431		3,147			126,141				126,141
February	2016	96		2,526	26		26	2,552		4,683			130,304				130,304
March	2016	48		2,574	66		66	2,640		1,989			132,692				132,692
April	2016	48		2,622	49		49	2,671		2,173			134,975				134,975
May	2016	40		2,662	25		25	2,687		2,388			137,081				137,081
June	2016	48		2,710	21		21	2,731		2,284			139,476				139,476
July	2016	14		2,724	19		19	2,743		612			142,685				142,685
August	2016	36		2,760	6		6	2,766		1,494			147,117				147,117
September	2016	55		2,815	1		1	2,816		2,395			149,088				149,088
October	2016	67		2,882	3		3	2,885		3,208			153,906				153,906
November	2016	95		2,977	0		0	2,977		4,432			160,462				160,462
December	2016	58		3,035	0		0	3,035		1,971			161,225				161,225
January	2017	101		3,136	8		8	3,144		4,818			161,225				161,225
February	2017	147		3,283	5		5	3,288		6,556			161,225				161,225
March	2017	16		3,299	1		1	3,300		763			161,225				161,225
April	2017	0		3,299	0		0	3,299		0			161,225				161,225
May	2017	0		3,299	0		0	3,299		0			161,225				161,225
June	2017	0		3,299	0		0	3,299		0			161,225				161,225
July	2017	0		3,299	0		0	3,299		0			161,225				161,225
August	2017	0		3,299	0		0	3,299		0			161,225				161,225
September	2017	0		3,299	0		0	3,299		0			161,225				161,225
October	2017	0		3,299	0		0	3,299		0			161,225				161,225
November	2017	0		3,299	0		0	3,299		0			161,225				161,225
December	2017	0		3,299	0		0	3,299		0			161,225				161,225

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Appendix C.10 Residential Duct Sealing Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
		Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC			System							
Month	Year	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA	NC	System	VA	NC	System
October	2012	4		4				4	132		132	1.82		1.82
November	2012	8		12				12	105		105	1.45		1.45
December	2012	0		12				12	105		105	1.45		1.45
January	2013	0		12				12	105		105	1.45		1.45
February	2013	40		51				51	155		155	2.14		2.14
March	2013	2		53				53	139		139	1.89		1.89
April	2013	24		77				77	110		110	1.50		1.50
May	2013	17		94				94	101		101	1.38		1.38
June	2013	16		110				110	102		102	1.39		1.39
July	2013	4		114				114	101		101	1.38		1.38
August	2013	9		124				124	100		100	1.37		1.37
September	2013	4		128				128	101		101	1.38		1.38
October	2013	7		136				136	96		96	1.32		1.32
November	2013	6		141				141	95		95	1.30		1.30
December	2013	8		149				149	94		94	1.29		1.29
January	2014	7		157	0		0	157	89	-	89	1.20	-	1.20
February	2014	3		159	0		0	159	87	-	87	1.16	-	1.16
March	2014	2		161	0		0	161	86	-	86	1.15	-	1.15
April	2014	6		166	0		0	166	85	-	85	1.12	-	1.12
May	2014	4		170	0		0	170	84	-	84	1.10	-	1.10
June	2014	5		175	0		0	175	84	-	84	1.09	-	1.09
July	2014	4		179	0		0	179	82	-	82	1.05	-	1.05
August	2014	3		182	0		0	182	81	-	81	1.04	-	1.04
September	2014	26		207	0		0	207	84	-	84	1.03	-	1.03
October	2014	45		252	0		0	252	75	-	75	0.89	-	0.89
November	2014	56		308	0		0	308	68	-	68	0.77	-	0.77
December	2014	58		366	0		0	366	64	-	64	0.71	-	0.71
January	2015	54		420	1		1	420	62	58	62	0.67	0.51	0.67
February	2015	75		495	15		15	510	59	59	59	0.63	0.52	0.63
March	2015	62		557	38		53	610	57	53	57	0.61	0.47	0.59
April	2015	89		646	28		81	727	55	53	55	0.58	0.47	0.56
May	2015	111		757	34		115	872	54	52	54	0.56	0.46	0.54
June	2015	119		876	26		142	1,018	53	52	52	0.54	0.46	0.53
July	2015	69		945	6		148	1,093	52	52	52	0.53	0.46	0.52
August	2015	84		1,029	0		148	1,177	51	52	51	0.52	0.46	0.51
September	2015	59		1,088	0		148	1,236	51	52	51	0.52	0.46	0.51
October	2015	30		1,118	0		148	1,266	50	52	51	0.52	0.46	0.51
November	2015	27		1,145	0		148	1,293	50	52	51	0.51	0.46	0.51
December	2015	61		1,205	0		148	1,354	50	52	50	0.51	0.46	0.50
January	2016	31		1,236	0		148	1,385	50	52	50	0.51	0.46	0.50
February	2016	46		1,282	11		159	1,442	50	52	50	0.51	0.46	0.50
March	2016	20		1,302	32		192	1,494	50	52	50	0.51	0.46	0.50
April	2016	21		1,323	21		213	1,536	50	52	50	0.50	0.46	0.50
May	2016	23		1,347	11		224	1,570	50	52	50	0.51	0.46	0.50
June	2016	22		1,369	8		231	1,600	50	51	50	0.51	0.45	0.50
July	2016	6		1,375	7		238	1,613	50	51	50	0.50	0.45	0.50
August	2016	15		1,390	4		242	1,632	50	51	50	0.50	0.45	0.50
September	2016	24		1,413	0		242	1,655	50	51	50	0.50	0.45	0.49
October	2016	32		1,445	1		243	1,688	50	51	50	0.50	0.45	0.49
November	2016	44		1,488	0		243	1,731	49	51	50	0.50	0.45	0.49
December	2016	19		1,508	0		243	1,751	49	51	49	0.50	0.45	0.49
January	2017	47		1,555	4		247	1,802	49	51	49	0.50	0.45	0.49
February	2017	64		1,620	2		249	1,868	49	51	49	0.49	0.45	0.49
March	2017	8		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
April	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
May	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
June	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
July	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
August	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
September	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
October	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
November	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
December	2017	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49

Appendix C.10 Residential Duct Sealing Program 2012-2018

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA		NC			System		VA		NC			System	
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	Cum for IRP
January	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
February	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
March	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
April	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
May	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
June	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
July	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
August	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
September	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
October	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
November	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444
December	2018	0		3,299	0		554	3,853	0		161,225	0		28,219	189,444

Table 2. EM&V Data Incremental by Vintage Year		Gross Incremental Energy (kWh)									
	Year	Program Participants				Gross Incremental Energy (kWh)					
		VA IRP			NC IRP	System IRP	VA IRP			NC IRP	System IRP
2012		8			-	8	1,946			-	1,946
2013		108			-	108	76,759			-	76,759
2014		401			-	401	70,234			-	70,234
2015		1,860			323	2,183	598,792			146,730	745,521
2016		658			217	875	205,001			95,389	300,390
2017		264			14	278	137,557			7,734	145,291
2018		0			0	0	0			0	0

Table 3. EM&V Data Annualized by Vintage Year		Gross Annualized Energy (kWh/year)									
	Year	Program Participants				Gross Annualized Energy (kWh/year)					
		VA IRP			NC IRP	System IRP	VA IRP			NC IRP	System IRP
2012		8			-	8	10,093			-	10,093
2013		108			-	108	120,772			-	120,772
2014		401			-	401	264,570			-	264,570
2015		1,860			323	2,183	1,024,299			201,495	1,225,794
2016		658			217	875	369,325			129,136	498,461
2017		264			14	278	145,638			8,003	153,641
2018		0			0	0	0			0	0

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Gross Energy (kWh)									
	Year	Program Participants				Gross Energy (kWh)					
		VA IRP			NC IRP	System IRP	VA IRP			NC IRP	System IRP
2012		8			-	8	1,946			-	1,946
2013		116			-	116	86,852			-	86,852
2014		517			-	517	201,099			-	201,099
2015		2,377			323	2,700	994,226			146,730	1,140,956
2016		3,035			540	3,575	1,624,735			296,884	1,921,619
2017		3,299			554	3,853	1,926,616			338,365	2,264,980
2018		3,299			554	3,853	1,934,698			338,633	2,273,331

Appendix C.10 Residential Duct Sealing Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		System			VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	Cum for IRP						
January	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
February	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
March	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
April	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
May	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
June	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
July	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
August	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
September	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
October	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
November	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49
December	2018	0		1,627	0		249	1,876	49	51	49	0.49	0.45	0.49

Table 2. EM&V Data Incremental by Vintage Year								Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
	Gross Peak Demand (kW)							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
	VA IRP		NC IRP		System IRP			VA	NC	System	VA	NC	System
2012	12				12			243	-	243	1.45	-	1.45
2013	138				138			711	-	711	1.28	-	1.28
2014	217				217			175	-	175	0.54	-	0.54
2015	839				987			322	454	342	0.45	0.46	0.45
2016	302				397			312	440	343	0.46	0.44	0.45
2017	119				6			521	552.44	523	0.45	0.42	0.45
2018	0				0			-	-	-	-	-	-

Table 3. EM&V Data Annualized by Vintage Year								Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
	Gross Peak Demand (kW)							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
	VA IRP		NC IRP		System IRP			VA	NC	System	VA	NC	System
2012	12				12			1,262	-	1,262	1.45	-	1.45
2013	138				138			1,118	-	1,118	1.28	-	1.28
2014	217				217			660	-	660	0.54	-	0.54
2015	839				987			551	624	562	0.45	0.46	0.45
2016	302				397			561	595	570	0.46	0.44	0.45
2017	119				6			552	572	553	0.45	0.42	0.45
2018	0				0			-	-	-	-	-	-

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)								IRP Energy Savings/Participant			IRP Capacity Savings/Participant		
	Gross Peak Demand (kW)							Gross kWh/Participant			Gross kW/Participant		
	VA IRP		NC IRP		System IRP			VA	NC	System	VA	NC	System
2012	12				12			243	-	243	1.45	-	1.45
2013	149				149			749	-	749	1.29	-	1.29
2014	366				366			389	-	389	0.71	-	0.71
2015	1,205				1,48			1,354	454	423	0.51	0.46	0.50
2016	1,508				243			1,751	535	538	0.50	0.45	0.49
2017	1,627				249			1,876	584	588	0.49	0.45	0.49
2018	1,627				249			1,876	586	590	0.49	0.45	0.49

Appendix C.11 Residential Home Energy Check-Up Program 2012-2018

PROGRAM: Residential Home Energy Check-Up
 DSM Phase II Program
 Type: Energy Efficiency
 Program Measure Life: 10.0 years

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA			NC			System	VA			NC			System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]	E+G							
October	2012	4		4					4	251				251	
November	2012	6		10					10	431				681	
December	2012	21		31					31	1,359				2,040	
January	2013	22		53					53	1,254				3,295	
February	2013	37		90					90	2,137				5,431	
March	2013	14		104					104	905				6,336	
April	2013	27		131					131	1,636				7,972	
May	2013	42		173					173	2,691				10,663	
June	2013	15		188					188	903				11,566	
July	2013	15		203					203	1,030				12,596	
August	2013	61		264					264	3,878				16,474	
September	2013	75		339					339	4,678				21,152	
October	2013	219		558					558	13,348				34,500	
November	2013	305		863					863	18,822				53,322	
December	2013	737		1,600					1,600	45,125				98,448	
January	2014	540		2,140	0		0	2,140	21,730		120,178	0		0	120,178
February	2014	942		3,082	0		0	3,082	39,481		159,659	0		0	159,659
March	2014	877		3,959	0		0	3,959	34,726		194,385	0		0	194,385
April	2014	1,372		5,331	0		0	5,331	58,089		252,474	0		0	252,474
May	2014	1,247		6,578	0		0	6,578	49,930		302,405	0		0	302,405
June	2014	1,751		8,329	0		0	8,329	68,114		370,519	0		0	370,519
July	2014	2,023		10,352	0		0	10,352	73,873		444,392	0		0	444,392
August	2014	2,079		12,431	0		0	12,431	80,458		524,849	0		0	524,849
September	2014	3,222		15,653	0		0	15,653	165,970		690,819	0		0	690,819
October	2014	1,739		17,392	0		0	17,392	90,281		781,100	0		0	781,100
November	2014	544		17,936	0		0	17,936	29,805		810,905	0		0	810,905
December	2014	3,366		21,302	0		0	21,302	168,629		979,535	0		0	979,535
January	2015	1,829		23,131	0		0	23,131	74,464		1,053,999	0		0	1,053,999
February	2015	985		24,116	152		152	24,268	40,442		1,094,441	9,902		9,902	1,104,342
March	2015	957		25,073	156		308	25,381	37,909		1,132,250	8,686		18,587	1,150,837
April	2015	906		25,979	128		436	26,415	33,398		1,165,648	5,216		24,803	1,190,451
May	2015	1,038		27,017	237		673	27,690	36,994		1,202,642	10,531		35,334	1,237,976
June	2015	1,227		28,244	200		873	29,117	49,120		1,251,762	8,935		44,269	1,296,032
July	2015	1,219		29,463	86		959	30,422	48,873		1,300,635	3,355		47,624	1,348,260
August	2015	1,355		30,818	5		964	31,782	55,266		1,355,901	219		47,843	1,403,744
September	2015	1,500		32,318	27		991	33,309	67,609		1,423,510	1,314		49,158	1,472,668
October	2015	1,121		33,439	4		995	34,434	46,778		1,470,288	214		49,372	1,519,660
November	2015	1,107		34,546	0		995	35,541	51,943		1,522,231	0		49,372	1,571,602
December	2015	616		35,162	1		996	36,158	26,804		1,549,035	59		49,431	1,598,466
January	2016	737		35,899	3		999	36,898	25,870		1,574,904	97		49,529	1,624,433
February	2016	889		36,788	1		1,000	37,788	35,940		1,610,844	27		49,556	1,660,400
March	2016	1,301		38,089	0		1,000	39,089	44,722		1,655,566	0		49,556	1,705,122
April	2016	1,804		39,893	0		1,000	40,893	61,302		1,716,869	0		49,556	1,766,424
May	2016	2,211		42,104	0		1,000	43,104	78,783		1,795,652	0		49,556	1,845,208
June	2016	1,360		43,464	0		1,000	44,464	44,024		1,839,676	0		49,556	1,889,231
July	2016	1,348		44,812	0		1,000	45,812	51,664		1,891,340	0		49,556	1,940,896
August	2016	1,913		46,725	0		1,000	47,725	75,031		1,966,371	0		49,556	2,015,927
September	2016	880		47,605	0		1,000	48,605	34,863		2,001,235	0		49,556	2,050,790
October	2016	1,074		48,679	0		1,000	49,679	39,961		2,041,196	0		49,556	2,090,752
November	2016	1,328		50,007	0		1,000	51,007	57,410		2,098,606	0		49,556	2,148,162
December	2016	407		50,414	0		1,000	51,414	17,385		2,115,991	0		49,556	2,165,547
January	2017	1,069		51,483	5		1,005	52,488	50,028		2,166,019	475		50,031	2,216,050
February	2017	377		51,860	39		1,044	52,904	16,470		2,182,488	2,055		52,086	2,234,574
March	2017	54		51,914	5		1,049	52,963	2,467		2,184,956	391		52,476	2,237,432
April	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
May	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
June	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
July	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
August	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
September	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
October	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
November	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
December	2017	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432

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Appendix C.11 Residential Home Energy Check-Up Program 2012-2018

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Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		System			VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP						
October	2012	0		0				0	63		63	0.11		0.11
November	2012	1		1				1	68		68	0.11		0.11
December	2012	2		3				3	66		66	0.10		0.10
January	2013	2		5				5	62		62	0.10		0.10
February	2013	3		8				8	60		60	0.09		0.09
March	2013	1		10				10	61		61	0.09		0.09
April	2013	2		12				12	61		61	0.09		0.09
May	2013	4		16				16	62		62	0.09		0.09
June	2013	1		18				18	62		62	0.09		0.09
July	2013	1		19				19	62		62	0.09		0.09
August	2013	6		25				25	62		62	0.09		0.09
September	2013	7		32				32	62		62	0.09		0.09
October	2013	20		51				51	62		62	0.09		0.09
November	2013	28		79				79	62		62	0.09		0.09
December	2013	64		143				143	62		62	0.09		0.09
January	2014	29		172	0		0	172	56	-	56	0.08	-	0.08
February	2014	52		225	0		0	225	52	-	52	0.07	-	0.07
March	2014	47		272	0		0	272	49	-	49	0.07	-	0.07
April	2014	76		348	0		0	348	47	-	47	0.07	-	0.07
May	2014	66		414	0		0	414	46	-	46	0.06	-	0.06
June	2014	94		508	0		0	508	44	-	44	0.06	-	0.06
July	2014	112		620	0		0	620	43	-	43	0.06	-	0.06
August	2014	115		735	0		0	735	42	-	42	0.06	-	0.06
September	2014	192		927	0		0	927	44	-	44	0.06	-	0.06
October	2014	101		1,028	0		0	1,028	45	-	45	0.06	-	0.06
November	2014	30		1,058	0		0	1,058	45	-	45	0.06	-	0.06
December	2014	191		1,249	0		0	1,249	46	-	46	0.06	-	0.06
January	2015	94		1,343	0		0	1,343	46	-	46	0.06	-	0.06
February	2015	52		1,395	10		10	1,405	45	65	46	0.06	0.07	0.06
March	2015	49		1,444	9		19	1,463	45	60	45	0.06	0.06	0.06
April	2015	42		1,486	7		26	1,511	45	57	45	0.06	0.06	0.06
May	2015	46		1,532	11		37	1,569	45	53	45	0.06	0.05	0.06
June	2015	61		1,593	10		47	1,640	44	51	45	0.06	0.05	0.06
July	2015	58		1,652	4		50	1,702	44	50	44	0.06	0.05	0.06
August	2015	66		1,718	0		50	1,768	44	50	44	0.06	0.05	0.06
September	2015	78		1,796	1		52	1,848	44	50	44	0.06	0.05	0.06
October	2015	55		1,851	0		52	1,903	44	50	44	0.06	0.05	0.06
November	2015	60		1,911	0		52	1,963	44	50	44	0.06	0.05	0.06
December	2015	32		1,944	0		52	1,996	44	50	44	0.06	0.05	0.06
January	2016	33		1,977	0		52	2,029	44	50	44	0.06	0.05	0.05
February	2016	43		2,020	0		52	2,072	44	50	44	0.05	0.05	0.05
March	2016	56		2,076	0		52	2,128	43	50	44	0.05	0.05	0.05
April	2016	78		2,153	0		52	2,205	43	50	43	0.05	0.05	0.05
May	2016	100		2,253	0		52	2,305	43	50	43	0.05	0.05	0.05
June	2016	56		2,309	0		52	2,362	42	50	42	0.05	0.05	0.05
July	2016	63		2,372	0		52	2,424	42	50	42	0.05	0.05	0.05
August	2016	88		2,460	0		52	2,513	42	50	42	0.05	0.05	0.05
September	2016	42		2,502	0		52	2,554	42	50	42	0.05	0.05	0.05
October	2016	48		2,550	0		52	2,602	42	50	42	0.05	0.05	0.05
November	2016	66		2,616	0		52	2,668	42	50	42	0.05	0.05	0.05
December	2016	21		2,637	0		52	2,689	42	50	42	0.05	0.05	0.05
January	2017	55		2,692	0		53	2,744	42	50	42	0.05	0.05	0.05
February	2017	19		2,710	2		54	2,765	42	50	42	0.05	0.05	0.05
March	2017	31		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
April	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
May	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
June	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
July	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
August	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
September	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
October	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
November	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
December	2017	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05

Appendix C.11 Residential Home Energy Check-Up Program 2012-2018

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Gross kWh						
		VA		NC			System	VA		NC			System		
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired		NC Cum. for IRP (New + Retired)	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New		NC Monthly Retired	NC Cum. for IRP (New + Retired)
System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP	System Cum for IRP		
January	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
February	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
March	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
April	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
May	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
June	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
July	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
August	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
September	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
October	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
November	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432
December	2018	0		51,914	0		1,049	52,963	0		2,184,956	0		52,476	2,237,432

Table 2. EM&V Data Incremental by Vintage Year		Program Participants						Gross Incremental Energy (kWh)					
		VA IRP		NC IRP		System IRP		VA IRP		NC IRP		System IRP	
2012		31		-		31		2,972		-		2,972	
2013		1,569		-		1,569		257,270		-		257,270	
2014		19,702		-		19,702		4,449,848		-		4,449,848	
2015		13,860		996		14,856		3,767,927		425,696		4,193,623	
2016		15,252		4		15,256		3,719,836		1,467		3,721,304	
2017		1,500		49		1,549		806,172		32,215		838,387	
2018		0		0		0		0		0		0	

Table 3. EM&V Data Annualized by Vintage Year		Program Participants						Gross Annualized Energy (kWh/year)					
		VA IRP		NC IRP		System IRP		VA IRP		NC IRP		System IRP	
2012		31		-		31		24,484		-		24,484	
2013		1,569		-		1,569		1,156,888		-		1,156,888	
2014		19,702		-		19,702		10,573,042		-		10,573,042	
2015		13,860		996		14,856		6,834,001		593,172		7,427,173	
2016		15,252		4		15,256		6,803,477		1,495		6,804,972	
2017		1,500		49		1,549		827,576		35,051		862,628	
2018		0		0		0		0		0		0	

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Program Participants						Gross Energy (kWh)					
		VA IRP		NC IRP		System IRP		VA IRP		NC IRP		System IRP	
2012		31		-		31		2,972		-		2,972	
2013		1,600		-		1,600		281,754		-		281,754	
2014		21,302		-		21,302		5,631,219		-		5,631,219	
2015		35,162		996		36,158		15,522,341		425,696		15,948,037	
2016		50,414		1,000		51,414		22,308,251		594,640		22,902,891	
2017		51,914		1,049		52,963		26,198,065		626,882		26,824,946	
2018		51,914		1,049		52,963		26,219,469		629,718		26,849,187	

Appendix C.11 Residential Home Energy Check-Up Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC		NC Cum. for IRP (New + Retired)	System Cum for IRP	VA	NC	System	VA	NC	System	
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New									NC Monthly Retired
January	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
February	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
March	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
April	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
May	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
June	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
July	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
August	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
September	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
October	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
November	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05
December	2018	0		2,713	0		55	2,768	42	50	42	0.05	0.05	0.05

Table 2. EM&V Data Incremental by Vintage Year							Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
	Gross Peak Demand (kW)						Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
	VA IRP		NC IRP		System IRP		VA	NC	System	VA	NC	System
2012	3		-		3		96	-	96	0.10	-	0.10
2013	140		-		140		164	-	164	0.09	-	0.09
2014	1,106		-		1,106		226	-	226	0.06	-	0.06
2015	695		52		747		272	427	282	0.05	0.05	0.05
2016	693		0.17		693		244	367	244	0.05	0.04	0.05
2017	76		2		79		537	657.45	541	0.05	0.05	0.05
2018	0		0		0		-	-	-	-	-	-

Table 3. EM&V Data Annualized by Vintage Year							Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
	Gross Peak Demand (kW)						Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
	VA IRP		NC IRP		System IRP		VA	NC	System	VA	NC	System
2012	3		-		3		790	-	790	0.10	-	0.10
2013	140		-		140		737	-	737	0.09	-	0.09
2014	1,106		-		1,106		537	-	537	0.06	-	0.06
2015	695		52		747		493	596	500	0.05	0.05	0.05
2016	693		0.17		693		446	374	446	0.05	0.04	0.05
2017	76		2		79		552	715	557	0.05	0.05	0.05
2018	0		0		0		-	-	-	-	-	-

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)							IRP Energy Savings/Participant			IRP Capacity Savings/Participant		
	Gross Peak Demand (kW)						Gross kWh/Participant			Gross kW/Participant		
	VA IRP		NC IRP		System IRP		VA	NC	System	VA	NC	System
2012	3		-		3		96	-	96	0.10	-	0.10
2013	143		-		143		176	-	176	0.09	-	0.09
2014	1,249		-		1,249		264	-	264	0.06	-	0.06
2015	1,944		52		1,996		441	427	441	0.06	0.05	0.06
2016	2,637		52		2,689		443	595	445	0.05	0.05	0.05
2017	2,713		55		2,768		505	598	506	0.05	0.05	0.05
2018	2,713		55		2,768		505	600	507	0.05	0.05	0.05

Appendix C.12 Residential Appliance Recycling Program 2015-2018

PROGRAM:	Residential Appliance Recycling Program
DSM Phase IV Program	
Type:	Energy Efficiency
Program Measure Life:	8.0 years

Table 1		Participation				Energy Savings							
		Program Participants				Gross kWh							
		VA		NC		System		VA		NC		System	
Month	Year	VA Monthly New [A]	VA Monthly Retired [-A retired]	VA Cum. for IRP [E] = Σ[A] - Σ[-A retired]	NC Monthly New	NC Monthly Retired	NC Cum. for IRP [E] = Σ[A] - Σ[-A retired]	VA Monthly New	VA Monthly Retired	VA Cum. for IRP [E] = Σ[A] - Σ[-A retired]	NC Monthly New	NC Monthly Retired	NC Cum. for IRP [E] = Σ[A] - Σ[-A retired]
January	2015	0	0	0	0	0	0	0	0	0	0	0	0
February	2015	0	0	0	0	0	0	0	0	0	0	0	0
March	2015	0	0	0	0	0	0	0	0	0	0	0	0
April	2015	0	0	0	0	0	0	0	0	0	0	0	0
May	2015	0	0	0	0	0	0	0	0	0	0	0	0
June	2015	0	0	0	0	0	0	0	0	0	0	0	0
July	2015	0	0	0	0	0	0	0	0	0	0	0	0
August	2015	0	0	0	0	0	0	0	0	0	0	0	0
September	2015	921	0	921	0	0	0	921	87,547	0	0	0	87,547
October	2015	1,008	0	1,929	0	0	0	1,329	97,487	185,034	0	0	185,034
November	2015	1,070	0	2,999	0	0	0	2,999	97,027	282,062	0	0	282,062
December	2015	207	0	3,206	0	0	0	3,206	19,468	301,530	0	0	301,530
January	2016	293	0	3,499	0	0	0	3,499	4,151	305,681	0	0	305,681
February	2016	4	0	3,503	0	0	0	3,503	418	306,099	0	0	306,099
March	2016	876	0	4,379	0	0	0	4,379	65,927	372,026	0	0	372,026
April	2016	653	0	5,032	0	0	0	5,032	52,456	424,482	0	0	424,482
May	2016	525	0	5,557	0	0	0	5,557	40,844	465,326	0	0	465,326
June	2016	1,204	0	6,761	0	0	0	6,761	98,735	564,111	0	0	564,111
July	2016	521	0	7,282	0	0	0	7,282	42,735	606,846	0	0	606,846
August	2016	1,102	0	8,384	0	0	0	8,384	96,035	702,881	0	0	702,881
September	2016	671	0	9,055	0	0	0	9,055	58,181	761,062	0	0	761,062
October	2016	615	0	9,670	0	0	0	9,670	52,902	813,964	0	0	813,964
November	2016	713	0	10,383	0	0	0	10,383	61,607	875,571	0	0	875,571
December	2016	648	0	11,031	0	0	0	11,031	55,301	930,872	0	0	930,872
January	2017	816	0	11,847	0	0	0	11,847	67,673	998,545	0	0	998,545
February	2017	313	0	12,160	0	0	0	12,160	25,659	1,024,204	0	0	1,024,204
March	2017	416	0	12,576	0	0	0	12,576	32,960	1,057,164	0	0	1,057,164
April	2017	511	0	13,087	0	0	0	13,087	41,653	1,098,817	0	0	1,098,817
May	2017	584	0	13,671	0	0	0	13,671	46,444	1,145,261	0	0	1,145,261
June	2017	475	0	14,146	0	0	0	14,146	36,072	1,181,334	0	0	1,181,334
July	2017	16	0	14,162	0	0	0	14,162	908	1,182,242	0	0	1,182,242
August	2017	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
September	2017	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
October	2017	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
November	2017	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
December	2017	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
January	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
February	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
March	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
April	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
May	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
June	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
July	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
August	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
September	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
October	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
November	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242
December	2018	0	0	14,162	0	0	0	14,162	0	1,182,242	0	0	1,182,242

Table 2. EM&V Data Incremental by Vintage Year		Gross Incremental Energy (kWh)							
		Program Participants				System IRP			
		VA IRP	NC IRP	System IRP	VA IRP	NC IRP	System IRP	VA IRP	System IRP
2015		3,206	-	3,206	856,173	-	856,173		
2016		7,735	-	7,735	3,510,563	-	3,510,563		
2017		3,131	-	3,131	2,428,307	-	2,428,307		
2018		0	-	0	0	-	0		

Table 3. EM&V Data Annualized by Vintage Year		Gross Annualized Energy (kWh)							
		Program Participants				System IRP			
		VA IRP	NC IRP	System IRP	VA IRP	NC IRP	System IRP	VA IRP	System IRP
2015		3,206	-	3,206	3,619,359	-	3,619,359		
2016		7,735	-	7,735	7,552,110	-	7,552,110		
2017		3,131	-	3,131	3,016,432	-	3,016,432		
2018		0	-	0	0	-	0		

Table 4. EM&V Data Accumulated through Vintage Year (for PPI)		Gross Energy (kWh) for PPI							
		Program Participants				System IRP			
		VA	NC PPI	System	VA	NC PPI	System	VA	System
2015			-			-			
2016			-			-			
2017			-			-			

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Gross Energy (kWh)							
		Program Participants				System IRP			
		VA IRP	NC IRP	System IRP	VA IRP	NC IRP	System IRP	VA IRP	System IRP
2015		3,206	-	3,206	856,173	-	856,173		
2016		10,941	-	10,941	7,128,922	-	7,128,922		
2017		14,072	-	14,072	13,598,776	-	13,598,776		
2018		14,072	-	14,072	14,186,901	-	14,186,901		

Appendix C.12 Residential Appliance Recycling Program 2015-2018

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Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
		Gross kW							Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA		NC			System							
Month	Year	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA	NC	System	VA	NC	System
January	2015	0		0				0	-	-	-	-	-	-
February	2015	0		0				0	-	-	-	-	-	-
March	2015	0		0				0	-	-	-	-	-	-
April	2015	0		0				0	-	-	-	-	-	-
May	2015	0		0				0	-	-	-	-	-	-
June	2015	0		0				0	-	-	-	-	-	-
July	2015	0		0				0	-	-	-	-	-	-
August	2015	0		0				0	-	-	-	-	-	-
September	2015	157		157				157	95		95	0.17		0.17
October	2015	175		332				332	96		96	0.17		0.17
November	2015	174		507				507	94		94	0.17		0.17
December	2015	35		542				542	94		94	0.17		0.17
January	2016	7		549	0			549	90		90	0.16		0.16
February	2016	11		559	0			559	90		90	0.16		0.16
March	2016	118		668	0			668	87		87	0.16		0.16
April	2016	94		762	0			762	86		86	0.15		0.15
May	2016	73		836	0			836	85		85	0.15		0.15
June	2016	177		1,013	0			1,013	85		85	0.15		0.15
July	2016	77		1,090	0			1,090	84		84	0.15		0.15
August	2016	172		1,262	0			1,262	85		85	0.15		0.15
September	2016	105		1,367	0			1,367	85		85	0.15		0.15
October	2016	95		1,462	0			1,462	85		85	0.15		0.15
November	2016	111		1,573	0			1,573	85		85	0.15		0.15
December	2016	99		1,672	0			1,672	85		85	0.15		0.15
January	2017	122		1,794	0			1,794	85		85	0.15		0.15
February	2017	46		1,840	0			1,840	85		85	0.15		0.15
March	2017	59		1,899	0			1,899	85		85	0.15		0.15
April	2017	75		1,974	0			1,974	85		85	0.15		0.15
May	2017	83		2,057	0			2,057	84		84	0.15		0.15
June	2017	85		2,123	0			2,123	84		84	0.15		0.15
July	2017	2		2,123	0			2,123	84		84	0.15		0.15
August	2017	0		2,123	0			2,123	84		84	0.15		0.15
September	2017	0		2,123	0			2,123	84		84	0.15		0.15
October	2017	0		2,123	0			2,123	84		84	0.15		0.15
November	2017	0		2,123	0			2,123	84		84	0.15		0.15
December	2017	0		2,123	0			2,123	84		84	0.15		0.15
January	2018	0		2,123	0			2,123	84		84	0.15		0.15
February	2018	0		2,123	0			2,123	84		84	0.15		0.15
March	2018	0		2,123	0			2,123	84		84	0.15		0.15
April	2018	0		2,123	0			2,123	84		84	0.15		0.15
May	2018	0		2,123	0			2,123	84		84	0.15		0.15
June	2018	0		2,123	0			2,123	84		84	0.15		0.15
July	2018	0		2,123	0			2,123	84		84	0.15		0.15
August	2018	0		2,123	0			2,123	84		84	0.15		0.15
September	2018	0		2,123	0			2,123	84		84	0.15		0.15
October	2018	0		2,123	0			2,123	84		84	0.15		0.15
November	2018	0		2,123	0			2,123	84		84	0.15		0.15
December	2018	0		2,123	0			2,123	84		84	0.15		0.15

Table 2. EM&V Data Incremental by Vintage Year										Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
Gross Peak Demand (kW)										Gross kWh/Participant for IRP			Gross kW/Participant for IRP		

Table 3. EM&V Data Annualized by Vintage Year						Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
Gross Peak Demand (kW)						Gross kWh/ Participant for IRP			Gross kW/Participant for IRP		
		VA IRP		NC IRP	System IRP	VA	NC	System	VA	NC	System
2015		542		-	542	1,129	-	1,129	0.17	-	0.17
2016		1,130		-	1,130	976	-	976	0.15	-	0.15
2017		451		-	451	963	-	963	0.14	-	0.14
2018		0		-	0	-	-	-	-	-	-

Table 4. EM&V Data Accumulated through Vintage Year (for PPI)						PPI Energy Savings/Participant			PPI Capacity Savings/Participant		
Gross Peak Demand (kW)						Gross kWh/Participant			Gross kW/Participant		
		VA		NC PPI	System	VA	NC	System	VA	NC	System
2015		-		-	-	-	-	-	-	-	-
2016		-		-	-	-	-	-	-	-	-
2017		-		-	-	-	-	-	-	-	-

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)						IRP Energy Savings/Participant			IRP Capacity Savings/Participant			
Gross Peak Demand (kW)						Gross kWh/Participant			Gross kW/Participant			
						VA	NC	System	VA	NC	System	
2015		542			-	542	267	-	267	0.17	-	0.1
2016		1,672			-	1,672	652	-	652	0.15	-	0.15
2017		2,123			-	2,123	966	-	966	0.15	-	0.1
2018		2,123			-	2,123	1,008	-	1,008	0.15	-	1.1

Appendix C.13 Non-residential Duct Testing and Sealing Program 2012-2018

PROGRAM: Non-Residential Duct Testing & Sealing
 DSM Phase II Program
 Type: Energy Efficiency
 Program Measure Life: 25.0 years

Table 1		Participation							Energy Savings						
		Program Participants							Gross kWh						
		VA			NC			System	VA			NC			System
Month	Year	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
		[A]	[-A retired]	[E] = Σ[A] + Σ[-A retired]	[C]	[-C retired]	[G] = Σ[C] + Σ[-C retired]	E+G							
October	2012	0		0				0	0			0			0
November	2012	1		1				1	180						180
December	2012	10		11				11	6,299						6,479
January	2013	2		13				13	2,354						8,832
February	2013	0		13				13	0						8,832
March	2013	8		21				21	2,611						11,443
April	2013	17		38				38	2,652						14,095
May	2013	12		50				50	3,722						17,816
June	2013	4		54				54	294						18,110
July	2013	27		81				81	13,795						31,906
August	2013	24		105				105	7,827						39,733
September	2013	87		172				172	27,826						67,559
October	2013	63		235				235	31,396						98,955
November	2013	30		265				265	11,454						110,409
December	2013	103		368				368	43,210						153,619
January	2014	22		390	0		0	390	13,218			166,837	0		166,837
February	2014	106		496	0		0	496	72,076			238,913	0		238,913
March	2014	243		739	0		0	739	111,865			350,779	0		350,779
April	2014	125		864	0		0	864	181,627			532,406	0		532,406
May	2014	115		979	0		0	979	102,031			634,437	0		634,437
June	2014	98		1,077	0		0	1,077	129,825			764,262	0		764,262
July	2014	166		1,243	0		0	1,243	287,856			1,052,118	0		1,052,118
August	2014	190		1,433	0		0	1,433	210,867			1,262,985	0		1,262,985
September	2014	205		1,639	0		0	1,639	363,779			1,626,764	0		1,626,764
October	2014	212		1,851	0		0	1,851	497,583			2,124,347	0		2,124,347
November	2014	137		1,988	46		46	2,034	291,889			2,416,326	45,596		2,461,922
December	2014	80		2,068	14		60	2,128	109,813			2,526,149	4,062		2,575,807
January	2015	100		2,168	12		72	2,240	201,891			2,728,040	35,926		2,813,623
February	2015	81		2,249	4		76	2,325	116,805			2,844,845	1,316		2,931,244
March	2015	116		2,365	2		78	2,443	103,437			2,948,282	2,005		3,037,186
April	2015	193		2,558	62		140	2,698	167,457			3,115,739	62,291		3,266,534
May	2015	112		2,670	13		153	2,823	59,933			3,175,672	20,520		3,347,387
June	2015	215		2,885	40		193	3,078	198,698			3,374,369	37,871		3,583,955
July	2015	101		2,986	9		202	3,188	58,395			3,432,764	20,271		3,662,621
August	2015	207		3,193	7		209	3,402	231,905			3,664,669	13,363		3,907,869
September	2015	250		3,443	0		209	3,552	217,522			3,882,190	0		4,125,410
October	2015	89		3,532	2		211	3,743	87,673			3,969,863	2,992		4,216,078
November	2015	93		3,625	1		212	3,837	88,982			4,058,845	3,513		4,308,571
December	2015	98		3,723	0		212	3,935	174,646			4,233,491	0		4,448,213
January	2016	49		3,772	0		212	3,984	185,981			4,419,472	0		4,669,198
February	2016	59		3,831	1		213	4,044	125,309			4,544,781	2,697		4,797,203
March	2016	41		3,872	0		213	4,085	64,244			4,609,025	0		4,861,447
April	2016	47		3,919	4		217	4,136	216,137			4,825,162	273		5,077,895
May	2016	21		3,940	3		220	4,160	212,483			5,037,644	500		5,290,839
June	2016	61		4,001	5		225	4,226	453,430			5,491,074	336		5,744,605
July	2016	52		4,053	4		229	4,282	112,152			5,603,226	16,577		5,873,333
August	2016	43		4,096	5		234	4,330	141,750			5,744,976	17,786		6,032,869
September	2016	61		4,157	1		235	4,392	182,701			5,927,677	235		6,215,805
October	2016	77		4,234	2		237	4,471	193,533			6,121,210	1,068		6,410,406
November	2016	72		4,306	8		245	4,551	182,431			6,303,640	6,374		6,599,211
December	2016	57		4,363	0		245	4,608	125,904			6,429,544	0		6,725,115
January	2017	42		4,405	3		248	4,853	240,780			6,670,325	844		6,986,739
February	2017	38		4,443	1		249	4,892	111,162			6,781,487	847		7,078,748
March	2017	1		4,444	1		250	4,694	2,335			6,783,822	13,663		7,094,747
April	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
May	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
June	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
July	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
August	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
September	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
October	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
November	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747
December	2017	0		4,444	0		250	4,694	0			6,783,822	0		7,094,747

Appendix C.13 Non-residential Duct Testing and Sealing Program 2012-2018

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May 01 2019

Table 1		Capacity Savings Gross kW							Energy Savings / Participant Gross kWh/Participant for IRP			Capacity Savings / Participant Gross kW/Participant for IRP		
Month	Year	VA		NC		System		System Cum for IRP	VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)							
October	2012	0		0				0	-	-	-	-	-	-
November	2012	0		0				0	180		180	0.26		0.26
December	2012	8		8				8	589		589	0.73		0.73
January	2013	3		11				11	679		679	0.82		0.82
February	2013	0		11				11	679		679	0.82		0.82
March	2013	4		14				14	545		545	0.68		0.68
April	2013	6		20				20	371		371	0.53		0.53
May	2013	11		31				31	356		356	0.62		0.62
June	2013	5		36				36	335		335	0.67		0.67
July	2013	36		72				72	394		394	0.89		0.89
August	2013	44		116				116	378		378	1.10		1.10
September	2013	85		201				201	393		393	1.17		1.17
October	2013	68		269				269	421		421	1.14		1.14
November	2013	48		317				317	417		417	1.20		1.20
December	2013	199		516				516	417		417	1.40		1.40
January	2014	20		536	0		0	536	428	-	428	1.37	-	1.37
February	2014	104		640	0		0	640	482	-	482	1.29	-	1.29
March	2014	129		769	0		0	769	475	-	475	1.04	-	1.04
April	2014	222		991	0		0	991	616	-	616	1.15	-	1.15
May	2014	130		1,120	0		0	1,120	648	-	648	1.14	-	1.14
June	2014	135		1,255	0		0	1,255	710	-	710	1.17	-	1.17
July	2014	299		1,554	0		0	1,554	846	-	846	1.25	-	1.25
August	2014	174		1,728	0		0	1,728	881	-	881	1.21	-	1.21
September	2014	207		1,935	0		0	1,935	993	-	993	1.18	-	1.18
October	2014	240		2,175	0		0	2,175	1,148	-	1,148	1.18	-	1.18
November	2014	279		2,455	60		60	2,515	1,215	991	1,210	1.23	1.30	1.24
December	2014	112		2,567	5		65	2,632	1,222	828	1,210	1.24	1.08	1.24
January	2015	210		2,776	46		111	2,887	1,258	1,189	1,256	1.28	1.54	1.29
February	2015	186		2,962	1		112	3,075	1,265	1,143	1,261	1.32	1.48	1.32
March	2015	151		3,114	2		114	3,228	1,247	1,140	1,243	1.32	1.46	1.32
April	2015	218		3,332	102		216	3,548	1,218	1,080	1,211	1.30	1.54	1.32
May	2015	79		3,411	34		250	3,661	1,189	1,122	1,186	1.28	1.63	1.30
June	2015	402		3,813	56		306	4,119	1,170	1,086	1,164	1.32	1.59	1.34
July	2015	132		3,944	25		331	4,275	1,150	1,138	1,149	1.32	1.64	1.34
August	2015	319		4,264	19		349	4,613	1,148	1,164	1,149	1.34	1.67	1.36
September	2015	283		4,546	0		349	4,896	1,128	1,164	1,130	1.32	1.67	1.34
October	2015	142		4,688	4		353	5,041	1,124	1,167	1,126	1.33	1.67	1.35
November	2015	194		4,882	3		357	5,238	1,120	1,178	1,123	1.35	1.68	1.37
December	2015	198		5,080	0		357	5,437	1,137	1,178	1,139	1.36	1.68	1.38
January	2016	176		5,256	0		357	5,613	1,172	1,178	1,172	1.39	1.68	1.41
February	2016	126		5,383	9		365	5,748	1,185	1,185	1,186	1.41	1.72	1.42
March	2016	157		5,540	0		365	5,905	1,190	1,185	1,190	1.43	1.72	1.45
April	2016	179		5,718	1		366	6,085	1,231	1,164	1,228	1.46	1.69	1.47
May	2016	98		5,816	1		368	6,184	1,279	1,151	1,272	1.48	1.67	1.49
June	2016	330		6,147	2		370	6,518	1,372	1,127	1,359	1.54	1.64	1.54
July	2016	249		6,396	62		432	6,828	1,382	1,180	1,372	1.58	1.89	1.59
August	2016	327		6,724	69		501	7,225	1,403	1,230	1,393	1.64	2.14	1.67
September	2016	225		6,949	1		502	7,451	1,426	1,226	1,415	1.67	2.14	1.70
October	2016	228		7,177	2		504	7,681	1,446	1,220	1,434	1.70	2.13	1.72
November	2016	318		7,495	12		516	8,011	1,464	1,206	1,450	1.74	2.11	1.76
December	2016	179		7,674	0		516	8,190	1,474	1,206	1,459	1.76	2.11	1.78
January	2017	472		8,147	3		519	8,665	1,514	1,195	1,497	1.85	2.09	1.86
February	2017	219		8,366	2		520	8,886	1,526	1,194	1,509	1.88	2.09	1.89
March	2017	4		8,370	50		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
April	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
May	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
June	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
July	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
August	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
September	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
October	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
November	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
December	2017	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90

Appendix C.13 Non-residential Duct Testing and Sealing Program 2012-2018

Table 1		Participation							Energy Savings						
Month	Year	Program Participants							Net kWh						
		VA		NC		System		System Cum for IRP	VA		NC		System		System Cum for IRP
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	
January	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
February	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
March	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
April	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
May	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
June	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
July	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
August	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
September	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
October	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
November	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747
December	2018	0		4,444	0		250	4,694	0		6,783,822	0		310,925	7,094,747

Table 2. EM&V Data Incremental by Vintage Year		Program Participants							Gross Incremental Energy (kWh)						
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		11		-		11			6,658		-		6,658		
2013		357		-		357			503,567		-		503,567		
2014		1,700		60		1,760			11,852,909		95,254		11,948,162		
2015		1,655		152		1,807			11,114,984		1,659,949		12,774,933		
2016		640		33		673			14,255,540		243,747		14,499,288		
2017		81		5		86			4,135,501		156,081		4,291,582		
2018		0		0		0			0		0		0		

Table 3. EM&V Data Annualized by Vintage Year		Program Participants							Gross Annualized Energy (kWh)						
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		11		-		11			77,742		-		77,742		
2013		357		-		357			1,765,683		-		1,765,683		
2014		1,700		60		1,760			28,470,361		595,895		29,066,256		
2015		1,655		152		1,807			20,488,106		2,400,813		22,888,919		
2016		640		33		673			26,352,640		550,135		26,902,775		
2017		81		5		86			4,251,334		184,255		4,435,589		
2018		0		0		0			0		0		0		

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)		Program Participants							Gross Energy (kWh)						
		VA IRP		NC IRP		System IRP			VA IRP		NC IRP		System IRP		
2012		11		-		11			6,658		-		6,658		
2013		368		-		368			581,309		-		581,309		
2014		2,068		60		2,128			13,696,333		95,254		13,791,587		
2015		3,723		212		3,935			41,428,770		2,255,843		43,684,613		
2016		4,363		245		4,608			65,057,433		3,240,455		68,297,888		
2017		4,444		250		4,694			81,280,033		3,702,924		84,982,957		
2018		4,444		250		4,694			81,405,866		3,731,098		85,136,964		

Appendix C.13 Non-residential Duct Testing and Sealing Program 2012-2018

Table 1		Capacity Savings							Energy Savings / Participant			Capacity Savings / Participant		
Month	Year	Net kW		VA Cum. for IRP (New+Retired)	NC		NC Cum. for IRP (New + Retired)	System			Net kWh/Participant for IRP			
		VA			NC Monthly			System	VA	NC	System			
		VA Monthly New	VA Monthly Retired		NC Monthly Retired	System Cum for IRP		VA	NC	System				
January	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
February	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
March	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
April	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
May	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
June	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
July	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
August	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
September	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
October	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
November	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90
December	2018	0		8,370	0		570	8,940	1,527	1,244	1,511	1.88	2.28	1.90

Table 2. EM&V Data Incremental by Vintage Year							Incremental Energy Savings/Participant			Incremental Capacity Savings/Participant		
	Gross Peak Demand (kW)	VA IRP		NC IRP	System IRP	Gross kWh/Participant for IRP			Gross kW/Participant for IRP			
						VA	NC	System	VA	NC	System	
2012	8			-	8	605	-	605	0.73	-	0.73	
2013	508			-	508	1,411	-	1,411	1.42	-	1.42	
2014	2,051			65	2,116	6,972	1,588	6,789	1.21	1.08	1.20	
2015	2,514			292	2,805	6,716	10,921	7,070	1.52	1.92	1.55	
2016	2,594			160	2,754	22,274	7,396	21,544	4.05	4.84	4.09	
2017	695			54	749	51,056	*****	49,902	8.58	10.77	8.71	
2018	0			0	0	-	-	-	-	-	-	

Table 3. EM&V Data Annualized by Vintage Year							Annualized Energy Savings/Participant			Annualized Capacity Savings/Participant		
	Gross Peak Demand (kW)	VA IRP		NC IRP		System IRP	Gross kWh/Participant for IRP			Gross kW/Participant for IRP		
		VA	NC	VA	NC	System	VA	NC	System	VA	NC	System
2012	8					8	7,067	-	7,067	0.73	-	0.73
2013	508					508	4,946	-	4,946	1.42	-	1.42
2014	2,051				65	2,116	16,747	9,932	16,515	1.21	1.08	1.20
2015	2,514				292	2,805	12,380	15,795	12,667	1.52	1.92	1.55
2016	2,594				160	2,754	41,176	16,671	39,974	4.05	4.84	4.09
2017	695				54	749	52,486	36,851	51,577	8.58	10.77	8.71
2018	0					0	-	-	-	-	-	-

Table 5. EM&V Data Accumulated through Vintage Year (for IRP and NLR)							IRP Energy Savings/Participant				IRP Capacity Savings/Participant							
	Gross Peak Demand (kW)						Gross kWh/Participant		Gross kW/Participant									
	VA IRP		NC IRP		System IRP		VA		NC		System		VA		NC		System	
2012	8				-	8	605	-	605	0.73	-	0.73						
2013	516				-	516	1,580	-	1,580	1.40	-	1.40						
2014	2,567			65		2,632	6,623	1,588	6,481	1.24	1.08	1.24						
2015	5,080			357		5,437	11,128	10,641	11,102	1.36	1.68	1.38						
2016	7,674			516		8,190	14,911	13,226	14,822	1.76	2.11	1.78						
2017	8,370			570		8,940	18,292	14,812	18,107	1.88	2.28	1.90						
2018	8,370			570		8,940	18,318	14,924	18,137	1.88	2.28	1.90						

Appendix C.14 Non-residential Energy Audit Program 2012-2018

PROGRAM: Non-Residential Energy Audit
 DSM Phase II Program
 Type: Energy Efficiency
 Program Measure Life: 7.0 years

Table 1		Participation Program Participants							Energy Savings Gross kWh						
Month	Year	VA		NC			System		VA		NC			System	
		VA Monthly New [A]	VA Monthly Retired [-A retired]	VA Cum. for IRP (New + Retired) [E] = $\sum[A] + \sum[-A \text{ retired}]$	NC Monthly New [C]	NC Monthly Retired [-C retired]	NC Cum. for IRP (New + Retired) [G] = $\sum[C] + \sum[-C \text{ retired}]$	System Cum for IRP E+G	VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New + Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP
November	2012	0		0				0	0		0				0
December	2012	1		1				1	2,953		2,953				2,953
January	2013	0		1				1	0		2,953				2,953
February	2013	0		1				1	0		2,953				2,953
March	2013	0		1				1	0		2,953				2,953
April	2013	0		1				1	0		2,953				2,953
May	2013	26		27				27	16,760		19,713				19,713
June	2013	7		34				34	2,620		22,332				22,332
July	2013	2		36				36	4		22,336				22,336
August	2013	3		39				39	222		22,559				22,559
September	2013	6		45				45	450		23,008				23,008
October	2013	88		133				133	168,393		191,401				191,401
November	2013	72		205				205	96,610		288,012				288,012
December	2013	98		303				303	89,729		377,791				377,791
January	2014	54		357	0		0	357	167,689		545,480	0		0	545,480
February	2014	72		429	0		0	429	162,166		707,646	0		0	707,646
March	2014	31		460	0		0	460	13,995		721,641	0		0	721,641
April	2014	70		530	0		0	530	292,920		1,014,561	0		0	1,014,561
May	2014	136		666	0		0	666	170,540		1,185,101	0		0	1,185,101
June	2014	41		707	0		0	707	85,605		1,270,706	0		0	1,270,706
July	2014	52		759	0		0	759	153,631		1,424,337	0		0	1,424,337
August	2014	114		873	0		0	873	94,986		1,519,323	0		0	1,519,323
September	2014	207		1,080	0		0	1,080	434,366		1,953,689	0		0	1,953,689
October	2014	145		1,225	2		2	1,227	141,596		2,095,284	5,538		5,538	2,100,822
November	2014	174		1,399	14		16	1,415	875,437		2,970,721	35,768		41,306	3,012,027
December	2014	20		1,419	0		16	1,435	39,424		3,010,145	0		41,306	3,051,451
January	2015	20		1,439	0		16	1,455	29,508		3,039,653	0		41,306	3,080,959
February	2015	16		1,455	0		16	1,471	21,224		3,060,877	0		41,306	3,102,183
March	2015	7		1,462	0		16	1,478	4,559		3,065,436	0		41,306	3,106,742
April	2015	2		1,464	0		16	1,480	48		3,065,484	0		41,306	3,106,790
May	2015	0		1,464	0		16	1,480	0		3,065,484	0		41,306	3,106,790
June	2015	0		1,464	1		17	1,481	0		3,065,484	319		41,625	3,107,109
July	2015	17		1,481	17		34	1,515	160		3,065,644	9,958		51,583	3,117,227
August	2015	10		1,491	60		94	1,585	109		3,065,753	8,508		60,091	3,125,844
September	2015	0		1,491	0		94	1,585	0		3,065,753	0		60,091	3,125,844
October	2015	0		1,491	0		94	1,585	0		3,065,753	0		60,091	3,125,844
November	2015	0		1,491	0		94	1,585	0		3,065,753	0		60,091	3,125,844
December	2015	1		1,492	0		94	1,586	9		3,065,762	0		60,091	3,125,853
January	2016	6		1,498	0		94	1,592	-828		3,064,935	0		60,091	3,125,025
February	2016	1		1,499	0		94	1,593	14		3,064,949	0		60,091	3,125,039
March	2016	0		1,499	0		94	1,593	0		3,064,949	0		60,091	3,125,039
April	2016	0		1,499	0		94	1,593	0		3,064,949	0		60,091	3,125,039
May	2016	1		1,500	0		94	1,594	3,929		3,068,878	0		60,091	3,128,969
June	2016	7		1,507	0		94	1,601	205,161		3,274,039	0		60,091	3,334,130
July	2016	0		1,507	3		97	1,604	10,041		3,284,080	0		60,091	3,344,171
August	2016	11		1,518	7		104	1,622	43,429		3,327,510	172		60,262	3,387,772
September	2016	13		1,531	1		105	1,636	40,230		3,367,739	19		60,282	3,428,021
October	2016	29		1,560	3		108	1,668	43,801		3,411,540	12,443		72,725	3,484,265
November	2016	34		1,594	0		108	1,702	121,477		3,533,018	0		72,725	3,605,743
December	2016	23		1,617	0		108	1,725	96,534		3,629,551	9,935		82,660	3,712,211
January	2017	13		1,630	0		108	1,738	12,653		3,642,205	30,409		113,068	3,755,273
February	2017	1		1,631	1		109	1,740	2,799		3,645,004	28,261		141,329	3,786,333
March	2017	1		1,632	1		110	1,742	927		3,645,930	10,151		151,480	3,797,410
April	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
May	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
June	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
July	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
August	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
September	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
October	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
November	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410
December	2017	0		1,632	0		110	1,742	0		3,645,930	0		151,480	3,797,410

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Appendix C.14 Non-residential Energy Audit Program 2012-2018

Table 1		Capacity Savings Gross kW						Energy Savings / Participant Gross kWh/Participant for IRP			Capacity Savings / Participant Gross kW/Participant for IRP		
Month	Year	VA		NC		System		VA	NC	System	VA	NC	System
		VA Monthly New	VA Monthly Retired	VA Cum. for IRP (New+Retired)	NC Monthly New	NC Monthly Retired	NC Cum. for IRP (New + Retired)	System Cum for IRP					
November	2012	0		0				0					
December	2012	10		10				10	2,953	2,953	10.05		10.05
January	2013	0		10				10	2,953	2,953	10.05		10.05
February	2013	0		10				10	2,953	2,953	10.05		10.05
March	2013	0		10				10	2,953	2,953	10.05		10.05
April	2013	0		10				10	2,953	2,953	10.05		10.05
May	2013	24		34				34	730	730	1.26		1.26
June	2013	4		38				38	657	657	1.12		1.12
July	2013	0		38				38	620	620	1.06		1.06
August	2013	0		38				38	578	578	0.98		0.98
September	2013	1		39				39	511	511	0.87		0.87
October	2013	486		525				525	1,439	1,439	3.95		3.95
November	2013	269		794				794	1,405	1,405	3.87		3.87
December	2013	172		966				966	1,247	1,247	3.19		3.19
January	2014	262		1,228	0		0	1,228	1,528	1,528	3.44		3.44
February	2014	234		1,462	0		0	1,462	1,650	1,650	3.41		3.41
March	2014	21		1,483	0		0	1,483	1,569	1,569	3.22		3.22
April	2014	407		1,890	0		0	1,890	1,914	1,914	3.57		3.57
May	2014	240		2,130	0		0	2,130	1,779	1,779	3.20		3.20
June	2014	118		2,248	0		0	2,248	1,797	1,797	3.18		3.18
July	2014	219		2,467	0		0	2,467	1,877	1,877	3.25		3.25
August	2014	144		2,611	0		0	2,611	1,740	1,740	2.99		2.99
September	2014	271		2,882	0		0	2,882	1,809	1,809	2.67		2.67
October	2014	68		2,950	8		8	2,957	1,710	2,769	2.41	3.80	2.41
November	2014	90		3,039	49		57	3,096	2,123	2,582	2.17	3.54	2.19
December	2014	31		3,070	0		57	3,127	2,121	2,582	2.16	3.55	2.18
January	2015	6		3,077	0		57	3,133	2,112	2,582	2.14	3.55	2.15
February	2015	1		3,078	0		57	3,135	2,104	2,582	2.12	3.55	2.13
March	2015	0		3,078	0		57	3,135	2,097	2,582	2.11	3.55	2.12
April	2015	0		3,078	0		57	3,135	2,094	2,582	2.099	2.10	3.55
May	2015	0		3,078	0		57	3,135	2,094	2,582	2.099	2.10	3.55
June	2015	0		3,078	1		57	3,136	2,094	2,449	2.098	2.10	3.38
July	2015	0		3,078	15		73	3,151	2,070	1,517	2.058	2.08	2.14
August	2015	0		3,079	14		87	3,165	2,056	639	1,972	2.06	0.92
September	2015	0		3,079	0		87	3,165	2,056	639	1,972	2.06	0.92
October	2015	0		3,079	0		87	3,165	2,056	639	1,972	2.06	0.92
November	2015	0		3,079	0		87	3,165	2,056	639	1,972	2.06	0.92
December	2015	0		3,079	0		87	3,165	2,055	639	1,971	2.06	0.92
January	2016	0		3,078	0		87	3,165	2,046	639	1,963	2.05	0.92
February	2016	0		3,078	0		87	3,165	2,045	639	1,962	2.05	0.92
March	2016	0		3,078	0		87	3,165	2,045	639	1,962	2.05	0.92
April	2016	0		3,078	0		87	3,165	2,045	639	1,962	2.05	0.92
May	2016	5		3,084	0		87	3,170	2,046	639	1,963	2.06	0.92
June	2016	278		3,361	0		87	3,448	2,173	639	2,083	2.23	0.92
July	2016	14		3,375	0		87	3,462	2,179	619	2,085	2.24	0.89
August	2016	59		3,434	0		87	3,521	2,192	579	2,089	2.26	0.84
September	2016	54		3,488	0		87	3,575	2,200	574	2,095	2.28	0.83
October	2016	59		3,548	17		104	3,651	2,187	673	2,089	2.27	0.96
November	2016	165		3,713	0		104	3,816	2,216	673	2,119	2.33	0.96
December	2016	131		3,843	13		117	3,961	2,245	765	2,152	2.38	1.09
January	2017	17		3,860	65		182	4,043	2,234	1,047	2,161	2.37	1.69
February	2017	6		3,866	61		243	4,109	2,235	1,297	2,176	2.37	2.23
March	2017	1		3,868	22		264	4,132	2,234	1,377	2,180	2.37	2.40
April	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
May	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
June	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
July	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
August	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
September	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
October	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
November	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40
December	2017	0		3,868	0		264	4,132	2,234	1,377	2,180	2.37	2.40