# APPENDIX 2 Residential Sector Data

### APPENDIX 2.1

## Measure Assumptions and Sources by EDC

Measure	Assumptions - Duquesne	-													
		Home	non	Base		Annual	Per Unit		Per Unit						
Measure	Measure Name	Type (SFA.	ROB vs. Retrofit	Elec.	% Elec.		Winter Demand	Winter	Summer Demand	Summer	Useful	Incremental	Measure/End Use Description	Base	EE
Measure	Measure Name	SFD.	vs. NC	Use	Savings		Savings	CF	Savings	CF	Life	/Full Cost	Measure/End Use Description	Saturation	Saturation
		MF)		(kWh)		(kWh)	(kW)		(kW)						
100	Water Heating End Use														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	5.7%	15.3%
102	Efficient Electric Water Heaters- 0.94 Energy Factor Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31 \$105.87	Homes w/Electric Water Heater Homes w/Electric Water Heater	5.7%	15.3%
103	Solar Water Heaters	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14		Homes w/Electric Water Heater	5.7%	0.0%
101	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	5.7%	0.0%
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	5.7%	0.0%
107	Electric Water Heater Pipe Insulation	SFD		-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	5.7%	0.0%
	Low Flow Showerheads- 1.5 GPM	SFD		-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	9.1%	68.8%
109	Low Flow Faucet Aerators Water Heater Tank Wrap	SFD SFD		-	-	61.0 97.0	0.056	1.000	0.056	1.000	12	\$2.00 \$50.00	Homes w/Electric Water Heater	19.8% 5.7%	72.8%
110	Efficient Electric Water Heaters- 0.93 Energy Factor	SEA	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	14		Homes w/Electric Water Heater Homes w/Electric Water Heater	5.7%	15.3%
	Efficient Electric Water Heaters- 0.94 Energy Factor	SEA	ROB	-	-	175.0	0.012	1.000	0.012	1.000	14	\$99.31	Homes w/Electric Water Heater	16.3%	15.3%
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	16.3%	15.3%
114	Solar Water Heaters	SFA	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	16.3%	0.0%
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	16.3%	0.0%
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	16.3%	0.0%
117	Electric Water Heater Pipe Insulation Low Flow Showerheads- 1.5 GPM	SFA SFA	Retrofit	-	-	124.0 461.0	0.011 0.042	1.000	0.011	1.000	13	\$18.00 \$20.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	16.3% 26.0%	0.0% 68.8%
118	Low Flow Snowerneads- 1.5 GPM Low Flow Faucet Aerators	SFA	Retrofit	-		61.0	0.042	1.000	0.042	1.000	12	\$20.00	Homes w/Electric Water Heater	56.9%	72.8%
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	16.3%	0.0%
	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	22.4%	15.3%
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	22.4%	15.3%
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	22.4%	15.3%
124 125	Solar Water Heaters	MF	ROB ROB	-	-	2106.0 1914.0	0.378	1.000	0.378	1.000	14 14	\$8,164.00 \$925.00	Homes w/Electric Water Heater	22.4%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	2202.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	22.4%	0.0%
120	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	124.0	0.202	1.000	0.202	1.000	14	\$18.00	Homes w/Electric Water Heater	22.4%	0.0%
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	35.8%	68.8%
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	78.4%	72.8%
130	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	22.4%	0.0%
200	Lighting					1010	0.110		0.440	0.050		00/00			
201 202	Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFD SFD	ROB ROB	-	-	134.0 26.0	0.119	0.298	0.119	0.050	20	\$86.00 \$2.20	Homes with ceiling fans that have light fixtures Homes with nightlights	197.5% 32.8%	18.3%
202	LED Nightlight	SFD	ROB	-	-	20.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	32.8%	100.0%
203	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	26.7	0.000	0.000	0.000	0.000	6	\$1.00	Homes with 60 Watt incandescent bulbs	100.0%	18.3%
204	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	18.3%
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	18.3%
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	18.3%
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	18.3%
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	350.0%	18.3%
211	ENERGY STAR Torchieres	SFD	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10		Homes with torchieres	100.0%	18.3%
212 213	ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL	SFD SFD	ROB Retrofit	-	-	10.6 4.6	0.000	0.000	0.000	0.000	10	\$20.00 \$18.00	Homes with holiday lights	60.0% 15.8%	16.7% 17.5%
213	Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
214	Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
215	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	103.0%	35.8%
217	Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	32-8%	100.0%
218	LED Nightlight	SFA	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	32.8%	100.0%
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8%
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	35.8%
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7		Homes with general service lamps	100.0%	35.8%
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	71.2 81.7	0.070	0.298	0.070	0.050	20 20	\$30.00 \$20.00	Homes with reflector lamps	100.0%	35.8% 35.8%
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres	SFA	ROB	-	-	81./ 60.4	0.057	0.050	0.057	0.050	20	\$20.00 \$25.00	Homes with outdoor fixtures Homes with torchieres	100.0%	35.8% 35.8%
226	ENERGY STAR Torchieres ENERGY STAR Holiday Lights	SFA	ROB	-	-	60.4 10.6	0.066	0.050	0.066	0.050	10	\$25.00 \$20.00	Homes with torchieres Homes with holiday lights	60.0%	35.8%
227	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit			4.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with nonday lights Homes with occupancy sensors	15.8%	16.7%
220	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit		1 -	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	49.0%	28.8%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	32.8%	100.0%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	32.8%	100.0%
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	28.8%
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	28.8%
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.8%
	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	28.8%
237			ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	28.8%
238	ENERGY STAR LEDs - General Service Lamps					71.0	0.070	0.000	0.070	0.050	00	\$20.00		100.007	
238 239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00 \$20.00	Homes with reflector lamps	100.0%	28.8%
238				-	-	71.2 81.7 60.4	0.070 0.057 0.066	0.298 0.050 0.050	0.070 0.057 0.066	0.050 0.050 0.050	20 20 10	\$20.00		100.0% 100.0%	28.8% 28.8% 28.8%

Measure	Assumptions - Duquesne														
Measure	Measure Name	Home Type (SFA, SFD,	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings	Winter CF	Per Unit Summer Demand Savings	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
0.42	Devidential Opportunity of Second 14 W/CEI	MF)	D i Ci	()		4.6	(kW) 0.000	0.200	(kW) 0.000	0.050	10	\$18.00	TT 54	45.00/	47.59/
243	Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	MF	Retrofit Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	15.8%	17.5%
	Residential Occupancy Sensors- 23 W CFL	ME	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
300	Appliances							0.270					(interview) (interview)	01072	
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	43.1%	7.0%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	43.1%	7.0%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	35.2%	24.5%
304	Energy Star side mount freezer without door ice Energy Star bottom mount freezer without door ice	SFD	ROB ROB	-	-	127.0 116.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with side mount freezers without door ice Homes with bottom mount freezers without door ice	6.7%	24.5% 24.5%
305	Energy Star bottom mount freezer with door ice	SFD	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	0.0%	24.5%
	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	16.0%	24.5%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	7.9%	6.8%
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	7.9%	6.8%
310	Energy Star chest freezer	SFD	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	15.8%	6.8%
311 312	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	213.0 136.0	0.010	1.000	0.010	1.000	12	\$1.00 \$270.00	Homes with dehumidifiers	18.0% 34.1%	85.3% 95.1%
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	224.0	0.015	1.000	0.046	1.000	10	\$270.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	5.9%	27.8%
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	88.2%	27.8%
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	5.9%	40.3%
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	78.4%	40.3%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	27.0%	11.7%
318	Energy Star Exhaust Fans	SFD	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
319 320	Energy Star Residential Whole House Fans Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	Retrofit ROB	-	-	229.0 1205.0	0.000	1.000	0.000	1.000	15	\$348.00 \$120.00	Homes with residential whole house fans Homes with secondary refrigerators	28.8%	9.1% 7.0%
320	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1659.0	0.332	0.620	0.241	0.620	8	\$120.00	Homes with secondary refrigerators	50.0%	7.0%
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	1055.0	0.013	1.000	0.032	1.000	13	\$95.00	Homes with secondary reingerators	32.4%	24.5%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	7.8%	24.5%
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	15.6%	24.5%
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	24.5%
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	16.2%	24.5%
327 328	Energy Star upright with manual defrost	SFA SFA	ROB ROB	-	-	47.0 67.0	0.011 0.011	1.000	0.011 0.011	1.000	11 11	\$80.00 \$72.00	Homes with upright, manual defrost freezers	0.0%	6.8%
328	Energy Star upright with automatic defrost Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers Homes with chest freezers	16.3%	6.8%
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$1.00	Homes with dehumidifiers	18.0%	85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	67.5%	95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	20.0%	27.8%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	27.9%	27.8%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	20.0%	40.3%
335	ENERGY STAR Dishwashers- with Gas Heat ENERGY STAR Room Air Conditioners	SFA SFA	ROB ROB	-	-	33.0 98.0	0.023 0.102	1.000	0.023 0.102	1.000 0.580	11 10	\$12.00 \$50.00	Homes with dishwasher and gas heat Attached SF homes with room AC	60.0% 36.0%	40.3%
337	Energy Star Exhaust Fans	SFA	ROB	-	-	2.0	0.102	1.000	0.102	1.000	10	\$30.00	Homes with exhaust fans	100.0%	10.0%
	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	28.8%	9.1%
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	8.8%	7.0%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	8.8%	7.0%
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	53.0%	24.5%
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	9.5%	24.5%
343 344	Energy Star bottom mount freezer without door ice Energy Star top mount freezer with door ice	MF	ROB ROB	-	-	116.0 124.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with bottom mount freezers without door ice Homes with top mount freezers with door ice	0.0%	24.5% 24.5%
345	Energy Star top mount freezer with door ice	MF	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	9.5%	24.5%
346	Energy Star upright with manual defrost	MF	ROB	-	-	47.0	0.013	1.000	0.015	1.000	11	\$80.00	Homes with side histin neededs with door ree Homes with upright, manual defrost freezers	2.4%	6.8%
347	Energy Star upright with automatic defrost	MF	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	2.4%	6.8%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	0.0%	6.8%
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$1.00	Homes with dehumidifiers	18.0%	85.3%
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	56.8%	95.1%
351	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB ROB	-	-	224.0 24.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat	12.1%	27.8%
352	ENERGY STAR Clothes Washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB ROB	-		24.0 74.0	0.015	1.000	0.015	1.000	10	\$250.00 \$12.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	36.6%	27.8% 40.3%
353	ENERGY STAR Dishwashers- with Electric water reating	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat Homes with dishwasher and gas heat	51.3%	40.3%
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	MF homes with room AC	103.7%	11.7%
356	Energy Star Exhaust Fans	MF	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	28.8%	9.1%
400	Electronics						0.010	1.005	0.040	1.005		<b>01</b> 00			
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00 \$60.00	Homes with a computer	203.6%	49.0%
402	ENERGY STAR Copier ENERGY STAR Fax Machine	SFD	ROB ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00 \$60.00	Homes with a copier Homes with a fax machine	4.2%	82.7% 6.0%
403	ENERGY STAR Pax Machine	SFD	ROB	-	-	14.0	0.002	1.000	0.011	1.000	4	\$00.00	Homes with a fax machine Homes with a desktop computer	12.1% 86.9%	6.0%
404	ENERGY STAR Multifunction	SFD	ROB	-	-	78.0	0.002	1.000	0.011	1.000	6	\$1.00	Homes with a desktop computer	53.2%	63.3%
406	ENERGY STAR Printer	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	29.4%	69.7%
407	>50 in television	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	82.2%	58.0%
408	<50 in television	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	225.5%	58.0%
409	Smart Strip Plug Outlets ENERGY STAR Computer	SFD	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
		SEA	ROB			77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	165.0%	49.0%

Measure	Assumptions - Duquesne Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh) 730	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life		Measure/End Use Description	Base Saturation	EE Saturation
411 412	ENERGY STAR Copier ENERGY STAR Fax Machine	SFA SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00 \$60.00	Homes with a copier	1.7%	82.7% 6.0%
412	ENERGY STAR Pax Machine ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	4	\$20.00	Homes with a fax machine Homes with a desktop computer	48.8%	6.0% 72.3%
414	ENERGY STAR Multifunction	SFA	ROB			78.0	0.002	1.000	0.002	1.000	6	\$1.00	Homes with a desktop computer	45.0%	63.3%
415	ENERGY STAR Printer	SFA	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	29.0%	69.7%
416	>50 in television	SFA	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	98.8%	58.0%
417	<50 in television	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	215.0%	58.0%
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
419	ENERGY STAR Computer	MF	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	101.8%	49.0%
420	ENERGY STAR Copier ENERGY STAR Fax Machine	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00 \$60.00	Homes with a copier	1.1%	82.7%
421	ENERGY STAR Pax Machine ENERGY STAR Monitor	MF	ROB ROB	-	-	14.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine Homes with a desktop computer	12.1%	6.0% 72.3%
422 423	ENERGY STAR Multifunction	MF	ROB	-	-	78.0	0.002	1.000	0.002	1.000	6	\$1.00	Homes with a desktop computer Homes with a multifunction printer	30.3%	63.3%
423	ENERGY STAR Printer	MF	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a minimuction printer	12.6%	69.7%
425	>50 in television	MF	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	64.9%	58.0%
426	<50 in television	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	128.8%	58.0%
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
500	Pool														
501	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	6.0%	10.0%
502	Variable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	6.0%	10.0%
503 504	High Efficiency Two-Speed Pool Pump Variable Speed Pool Pumps	SFA	ROB ROB	-	-	530.0 918.0	1.129 0.621	0.000	1.129 0.621	0.270	10	\$175.00 \$750.00	Homes with a pool Homes with a pool	6.0%	10.0%
505	High Efficiency Two-Speed Pool Pump	ME	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	6.2%	10.0%
506	Variable Speed Pool Pumps	MF	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	6.2%	10.0%
600	HVAC (Envelope)		ROD			710.0	0.021	0.000	0.021	0.270	10	<i>Q130.00</i>		0.270	10.070
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	19535	12.50%	2441.0	0.100	0.700	0.100	0.700	15	\$832.86	Detached SF existing homes with electric heat and Central AC	5.8%	77.1%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	25237	22.59%	5702.0	3.100	0.700	0.700	0.700	25	\$1,834.28	Detached SF existing homes with electric heat and Central AC	5.8%	86.4%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	25237	27.84%	7027.0	3.900	0.700	0.800	0.700	25	\$2,439.09	Detached SF existing homes with electric heat and Central AC	5.8%	86.4%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	25237	28.93%	7301.0	4.000	0.700	0.900	0.700	25	\$3,152.97	Detached SF existing homes with electric heat and Central AC	5.8%	86.4%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	19535	8.19%	1599.0	0.900	0.700	0.200	0.700	25	\$2,439.09	Detached SF existing homes with electric heat and Central AC	5.8%	43.2%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	28837	32.26%	9302.0	5.000	0.700	0.400	0.700	25	\$2,660.46	Detached SF existing homes with electric heat and Central AC	5.8%	82.5%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	28837	36.31%	10471.0	5.700	0.700	0.400	0.700	25	\$3,373.77	Detached SF existing homes with electric heat and Central AC	5.8%	82.5%
608	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	ROB Retrofit	19535 20710	7.84%	1531.0	0.900	0.700	0.000	0.700	20	\$693.30 \$1.368.27	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with electric heat and Central AC	5.8%	91.2% 41.7%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	20710	4.96%	1027.0	-0.100	0.700	0.000	0.700	25	\$1,508.27	Detached SF existing homes with electric heat and Central AC	5.8%	41.7%
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	19535	12.30%	2403.0	3.600	0.700	0.200	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	5.8%	43.9%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1624	-4.50%	-73.0	0.000	0.700	0.100	0.700	15	\$832.86	Detached SF existing homes with non-electric heat and Central AC	76.1%	77.1%
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1906	14.80%	282.0	0.000	0.700	0.700	0.700	25	\$1,834.28	Detached SF existing homes with non-electric heat and Central AC	76.1%	86.4%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1906	18.36%	350.0	0.000	0.700	0.800	0.700	25	\$2,439.09	Detached SF existing homes with non-electric heat and Central AC	76.1%	86.4%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1906	19.05%	363.0	0.000	0.700	0.900	0.700	25	\$3,152.97	Detached SF existing homes with non-electric heat and Central AC	76.1%	86.4%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1624	4.99%	81.0	0.000	0.700	0.200	0.700	25	\$2,439.09	Detached SF existing homes with non-electric heat and Central AC	76.1%	43.2%
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1716	5.36%	92.0	0.000	0.700	0.400	0.700	25	\$2,660.46	Detached SF existing homes with non-electric heat and Central AC	76.1%	82.5%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1716	6.00%	103.0	0.000	0.700	0.400	0.700	25	\$3,373.77	Detached SF existing homes with non-electric heat and Central AC	76.1%	82.5%
619	ENERGY STAR Windows	SFD	ROB	1624	-5.23%	-85.0	0.000	0.700	0.000	0.700	20	\$693.30	Detached SF existing homes with non-electric heat and Central AC	76.1%	91.2%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1463	-9.64%	-141.0	0.000	0.700	0.000	0.700	25	\$1,368.27	Detached SF existing homes with non-electric heat and Central AC	76.1%	41.7%
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1463	-11.00%	-161.0	0.000	0.700	0.000	0.700	25	\$1,735.13	Detached SF existing homes with non-electric heat and Central AC	76.1%	41.7%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1624	10.90%	177.0	0.000	0.700	0.200	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	76.1%	43.9%
623	Air Sealing (cost per sf of living space for a typical single-family home)	SED	Retrofit	1456	-4.53%	-66.0	0.000	0.700	0.200	0.580	15	\$832.86	Detached SF existing homes with non-electric heat and room AC	14.2%	77.1%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1782	18.29%	326.0	0.000	0.700	0.700	0.580	25	\$1,834.28	Detached SF existing homes with non-electric heat and room AC	14.2%	86.4%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1782	22.50%	401.0	0.000	0.700	0.900	0.580	25	\$2,439.09	Detached SF existing homes with non-electric heat and room AC	14.2%	86.4%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1782	23.34%	416.0	0.000	0.700	0.900	0.580	25	\$3,152.97	Detached SF existing homes with non-electric heat and room AC	14.2%	86.4%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1456	6.18%	90.0	0.000	0.700	0.200	0.580	25	\$2,439.09	Detached SF existing homes with non-electric heat and room AC	14.2%	43.2%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1576	7.61%	120.0	0.000	0.700	0.400	0.580	25	\$2,660.46	Detached SF existing homes with non-electric heat and room AC	14.2%	82.5%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1576	8.50%	134.0	0.000	0.700	0.400	0.580	25	\$3,373.77	Detached SF existing homes with non-electric heat and room AC	14.2%	82.5%
630	ENERGY STAR Windows	SFD	ROB	1456	-4.95%	-72.0	0.000	0.700	0.000	0.580	20	\$693.30	Detached SF existing homes with non-electric heat and room AC	14.2%	91.2%
631 632	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1291	-11.23%	-145.0 -165.0	0.000	0.700	0.000	0.580	25	\$1,368.27 \$1,735.13	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	14.2%	41.7%
633	Hoor Insulation - K0 to K-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1456	1.85%	27.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing nomes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	14.2%	41./%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SEA	Retrofit	13349	14.29%	1908.0	0.000	0.700	0.100	0.700	15	\$598.50	Attached SE existing homes with electric heat and Central AC	16.2%	77.1%
635	Air Sealing (cost per st of living space for a typical single-family nome) Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	17432	23.42%	4083.0	2.300	0.700	0.100	0.700	25	\$1 318.13	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	16.2%	86.4%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	17432	29.13%	5078.0	2.800	0.700	0.600	0.700	25	\$1,752.75	Attached SF existing homes with electric heat and Central AC	16.2%	86.4%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	17432	30.31%	5283.0	2.900	0.700	0.600	0.700	25	\$2,265.75	Attached SF existing homes with electric heat and Central AC	16.2%	86.4%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	13349	8.99%	1200.0	0.600	0.700	0.100	0.700	25	\$1,752.75	Attached SF existing homes with electric heat and Central AC	16.2%	43.2%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	16687	20.00%	3338.0	1.800	0.700	0.100	0.700	25	\$2,216.31	Attached SF existing homes with electric heat and Central AC	16.2%	82.5%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	16687	22.56%	3765.0	2.000	0.700	0.100	0.700	25	\$2,810,53	Attached SF existing homes with electric heat and Central AC	16.2%	82.5%

Measure	Assumptions - Duquesne Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	, i	Measure/End Use Description	Base Saturation	
641	ENERGY STAR Windows	SFA	ROB Retrofit	13349 14384	11.80% 6.28%	1575.0 904.0	0.800	0.700	0.100	0.700	20	\$679.52 \$983.25	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	16.2%	91.2%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA		- 1001	0.2071				0.000			÷		16.2%	41.7%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	14384	7.20%	1035.0	0.000	0.700	0.000	0.700	25	\$1,246.88	Attached SF existing homes with electric heat and Central AC	16.2%	41.7%
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	13349	11.69%	1560.0	2.600	0.700	0.200	0.700	14	\$373.28	Attached SF existing homes with electric heat and Central AC	16.2%	43.9%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1514	-2.51%	-38.0	0.000	0.700	0.100	0.700	15	\$598.50	Attached SF existing homes with non-electric heat and Central AC	67.5%	77.1%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1730	12.49%	216.0	0.000	0.700	0.500	0.700	25	\$1,318.13	Attached SF existing homes with non-electric heat and Central AC	67.5%	86.4%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1730	15.43%	267.0	0.000	0.700	0.600	0.700	25	\$1,752.75	Attached SF existing homes with non-electric heat and Central AC	67.5%	86.4%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1730 1514	16.01%	277.0 61.0	0.000	0.700	0.600	0.700	25 25	\$2,265.75 \$1.752.75	Attached SF existing homes with non-electric heat and Central AC	67.5%	86.4%
649 650	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA SFA	Retrofit	1514	4.03%	48.0	0.000	0.700	0.100	0.700	25	\$1,/52./5 \$2.216.31	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	67.5% 67.5%	43.2% 82.5%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1562	3.46%	54.0	0.000	0.700	0.100	0.700	25	\$2,810.53	Attached SF existing homes with non-electric heat and Central AC	67.5%	82.5%
652	ENERGY STAR Windows	SFA	ROB	1514	-5.15%	-78.0	0.000	0.700	0.000	0.700	20	\$679.52	Attached SF existing homes with non-electric heat and Central AC	67.5%	91.2%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1396	-7.45%	-104.0	0.000	0.700	0.000	0.700	25	\$983.25	Attached SF existing homes with non-electric heat and Central AC	67.5%	41.7%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1396	-8.45%	-118.0	0.000	0.700	0.000	0.700	25	\$1,246.88	Attached SF existing homes with non-electric heat and Central AC	67.5%	41.7%
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1514	10.17%	154.0	0.000	0.700	0.200	0.700	14	\$373.28	Attached SF existing homes with non-electric heat and Central AC	67.5%	43.9%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1387	-2.67%	-37.0	0.000	0.700	0.200	0.580	15	\$598.50	Attached SF existing homes with non-electric heat and room AC	16.2%	77.1%
657 658	Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA SFA	Retrofit Retrofit	1633 1633	15.06% 18.68%	246.0 305.0	0.000	0.700	0.500	0.580	25 25	\$1,318.13 \$1.752.75	Attached SF existing homes with non-electric heat and room AC Attached SF existing homes with non-electric heat and room AC	16.2% 16.2%	86.4% 86.4%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1633	19.41%	317.0	0.000	0.700	0.700	0.580	25	\$2,265.75	Attached SF existing homes with non-electric heat and room AC	16.2%	86.4%
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1387	5.12%	71.0	0.000	0.700	0.200	0.580	25	\$1,752.75	Attached SF existing homes with non-electric heat and room AC	16.2%	43.2%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1445	4.01%	58.0	0.000	0.700	0.100	0.580	25	\$2,216.31	Attached SF existing homes with non-electric heat and room AC	16.2%	82.5%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1445	4.50%	65.0	0.000	0.700	0.200	0.580	25	\$2,810.53	Attached SF existing homes with non-electric heat and room AC	16.2%	82.5%
663	ENERGY STAR Windows	SFA	ROB	1387	-4.76%	-66.0	0.000	0.700	0.100	0.580	20	\$679.52	Attached SF existing homes with non-electric heat and room AC	16.2%	91.2%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1256	-9.16%	-115.0	0.000	0.700	0.000	0.580	25	\$983.25	Attached SF existing homes with non-electric heat and room AC	16.2%	41.7%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1256	-10.43%	-131.0	0.000	0.700	0.000	0.580	25	\$1,246.88	Attached SF existing homes with non-electric heat and room AC	16.2%	41.7%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1387	3.24%	45.0	0.000	0.700	0.000	0.580	14	\$373.28	Attached SF existing homes with non-electric heat and room AC	16.2%	43.9%
667 668	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit Retrofit	5358 5704	19.30% 6.07%	1034.0 346.0	0.000	0.700	0.000	0.700	15 25	\$480.06 \$1.307.48	MF existing homes with electric heat and central AC MF existing homes with electric heat and central AC	8.8% 8.8%	77.1%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	5704	6.82%	389.0	0.200	0.700	0.000	0.700	25	\$1,658.03	MF existing homes with electric heat and central AC	8.8%	82.5%
670	ENERGY STAR Windows	MF	ROB	5358	25.68%	1376.0	0.800	0.700	0.000	0.700	20	\$656.61	MF existing homes with electric heat and central AC	8.8%	91.2%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	5358	9.22%	494.0	1.500	0.700	0.100	0.700	14	\$310.44	MF existing homes with electric heat and central AC	8.8%	43.9%
672 673	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit Retrofit	1081	-0.93% 0.64%	-10.0	0.000	0.700	0.000	0.700	15 25	\$480.06 \$1.307.48	MF existing homes with non-electric heat and central AC MF existing homes with non-electric heat and central AC	54.3% 54.3%	77.1% 82.5%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	1088	0.74%	8.0	0.000	0.700	0.100	0.700	25	\$1,658.03	MF existing homes with non-electric heat and central AC	54.3%	82.5%
675	ENERGY STAR Windows	MF	ROB	1081	-4.90%	-53.0	0.000	0.700	0.000	0.700	20	\$656.61	MF existing homes with non-electric heat and central AC	54.3%	91.2%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	1081	5.74%	62.0	0.000	0.700	0.100	0.700	14	\$310.44	MF existing homes with non-electric heat and central AC	54.3%	43.9%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	1181	-1.10%	-13.0	0.000	0.700	0.100	0.580	15	\$480.06	MF existing homes with non-electric heat and room AC	17.7%	77.1%
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	1188	0.59%	7.0	0.000	0.700	0.000	0.580	25	\$1,307.48	MF existing homes with non-electric heat and room AC	17.7%	82.5%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	1188	0.67%	8.0	0.000	0.700	0.000	0.580	25	\$1,658.03	MF existing homes with non-electric heat and room AC	17.7%	82.5%
680	ENERGY STAR Windows	MF	ROB	1181	-5.00%	-59.0	0.000	0.700	0.000	0.580	20	\$656.61	MF existing homes with non-electric heat and room AC	17.7%	91.2%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	1181	6.01%	71.0	0.000	0.700	0.000	0.580	14	\$310.44	MF existing homes with non-electric heat and room AC	17.7%	43.9%
700	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	19535	1.91%	374.0	0.000	1.000	0.000	1.000	15	\$25.00	Detached SF homes with heat pumps	7.6%	54.2%
702	Air Source Heat Pump (Maintenance)	SFD SFD	Retrofit ROB	19535 15956	9.53% 4.87%	1861.0 777.0	0.000	0.700	0.000	0.700	7	\$100.00 \$822.00	Detached SF homes with heat pumps	7.6%	68.8%
703 704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	15956	4.8/% 6.56%	1047.0	0.000	0.700	0.100	0.700	12	\$822.00 \$1,644.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	7.6%	14.3% 14.3%
705	GSHP w/ Desuperheater	SFD	ROB	19874	13.53%	2689.0	0.000	0.700	0.500	0.700	30	\$11.300.00	Detached SF homes with heat pumps	7.6%	14.3%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	15956	29.98%	4784.0	6.700	0.700	0.600	0.700	15	\$1,200.00	Detached SF homes with heat pumps	7.6%	14.3%
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	15956	13.36%	2131.0	0.000	0.700	0.300	0.700	30	\$10,700.00	Detached SF homes with heat pumps	7.6%	14.3%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	1160	11.47%	133.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	88.0%	14.3%
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	1160	16.03%	186.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	88.0%	14.3%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	1624	10.04%	163.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	88.0%	68.0%
711	Furnace High Efficiency Fan	SFD	Retrofit	1624	27.46%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	107.6%	10.0%
712	Programmable Thermostat (CAC)	SFD	Retrofit	1624	1.91%	31.0 119.0	0.000	0.000	0.000	0.700	15	\$25.00 \$2.00	Detached SF existing homes with Central AC	88.0%	54.2%
713	Furnace Whistle			-	-				0.000				Detached SF existing homes with non-electric furnace	107.6%	10.0%
714	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	SFD SFD	ROB ROB	353 353	7.37%	353.0 26.0	0.000	0.000	0.000	0.580	4	\$60.00 \$60.00	Detached SF homes with room AC Detached SF homes with room AC	27.0%	11.7%
715			ROB -	353	1.3/%	20.0	0.000	0.000	0.000	0.580	4	\$60.00	Detached of nomes with room AC	27.0%	11./%
715 716	Programmable Thermostat (ASHP)	SEA	Retrofit	13349	1.57%	209.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	0.0%	54.2%

Measure .	Assumptions - Duquesne	_			-										
Measure	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	10917	4.93%	538.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	0.0%	14.3%
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	10917	6.66%	727.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	0.0%	14.3%
720	GSHP w/ Desuperheater	SFA	ROB	14837	7.64%	1133.0	0.000	0.700	0.400	0.700	30	\$11,300.00	Attached SF existing homes with heat pump	0.0%	14.3%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	10917	30.93%	3377.0	5.200	0.700	0.500	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	0.0%	14.3%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	10917	5.56%	607.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	0.0%	14.3%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	1082	11.46%	124.0	0.000	0.000	0.000	0.700	14	\$1,333.00	Attached SF homes with Central AC	83.8%	14.3%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	1082	16.08%	174.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Attached SF homes with Central AC	83.8%	14.3%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1514	9.97%	151.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	83.8%	68.0%
726	Furnace High Efficiency Fan	SFA	Retrofit	1514	29.46%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	83.8%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	1514	1.39%	21.0	0.000	0.000	0.000	1.000	15	\$25.00 \$2.00	Attached SF homes with Central AC	83.8%	54.2%
728	Furnace Whistle	SFA	Retrofit	- 252	-	119.0	0.050	1.000	0.050		15		Attached SF homes with non-electric furnace	83.8%	10.0%
729 730	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	SFA SFA	ROB ROB	353 353	100.00%	353.0 26.0	0.000	0.000	1.103	0.580	4	\$60.00 \$60.00	Attached SF homes with room AC Attached SF homes with room AC	36.0%	11.7%
730	Programmable Thermostat (ASHP)	MF	Retrofit	5358	1.03%	55.0	0.000	1.000	0.000	1.000	15	\$25.00	MF homes with heat pump	9.7%	54.2%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	5358	8.83%	473.0	0.000	0.700	0.000	0.700	7	\$23.00	MF homes with heat pump	9.7%	68.8%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	4380	5.21%	228.0	0.000	0.700	0.000	0.700	12	\$822.00	MF homes with heat pump	9.7%	14.3%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	4380	7.10%	311.0	0.000	0.700	0.000	0.700	12	\$1,644.00	MF homes with heat pump	9.7%	14.3%
735	GSHP w/ Desuperheater	MF	ROB	7628	-0.29%	-22.0	0.000	0.700	0.200	0.700	30	\$11,300,00	MF homes with heat pump	9.7%	14.3%
736	Ductless Mini-Split Heat Pumps	MF	ROB	4380	22.17%	971.0	2.000	0.700	0.100	0.700	15	\$1,200.00	MF homes with heat pump	9.7%	14.3%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	4380	-9.32%	-408.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	9.7%	14.3%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	773	11.51%	89.0	0.000	0.000	0.100	0.700	14	\$1,333.00	MF homes with Central AC	63.1%	14.3%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	773	16.17%	125.0	0.000	0.000	0.100	0.700	14	\$2,407.00	MF homes with Central AC	63.1%	14.3%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	1081	9.99%	108.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	63.1%	68.0%
741	Furnace High Efficiency Fan	MF	Retrofit	1081	41.26%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	77.5%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	1081	-0.46%	-5.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	63.1%	54.2%
743	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	77.5%	10.0%
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$60.00	MF homes with room AC	103.7%	11.7%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$60.00	MF homes with room AC	103.7%	11.7%
800 801	Whole House Direct (Real Time) Feedback	SFD	Retrofit	30791	6.15%	1893.6	1.526	0.700	1.526	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	5.8%	28.0%
801	Indirect Feedback (O-Power)	SFD	Retrofit	30791	2.23%	686.6	0.553	0.700	0.553	0.700	2	\$140.00	Detached SF existing homes with electric heat and Central AC	5.8%	28.0%
802	Direct (Real Time) Feedback	SFD	Retrofit	7679	6.15%	472.3	0.333	0.700	0.335	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	76.1%	28.0%
803	Indirect Feedback (O-Power)	SFD	Retrofit	7679	2.23%	171.2	0.138	0.700	0.138	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	76.1%	0.0%
805	Direct (Real Time) Feedback	SFD	Retrofit	7511	6.15%	461.9	0.372	0.700	0.372	0.580	3	\$140.00	Detached SF existing homes with non-electric heat and comma AC	14.2%	28.0%
806	Indirect Feedback	SFD	Retrofit	7511	2.23%	167.5	0.135	0.700	0.135	0.580	2	\$22.50	Detached SF existing homes with non-electric heat and room AC	14.2%	0.0%
807	Direct (Real Time) Feedback	SFA	Retrofit	23109	6.15%	1421.2	1.145	0.700	1.145	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	16.2%	28.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	23109	2.23%	515.3	0.415	0.700	0.415	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	16.2%	0.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	6071	6.15%	373.4	0.301	0.700	0.301	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	67.5%	28.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	6071	2.23%	135.4	0.109	0.700	0.109	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	67.5%	0.0%
811	Direct (Real Time) Feedback	SFA	Retrofit	5944	6.15%	365.6	0.295	0.700	0.295	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	16.2%	28.0%
812	Indirect Feedback (O-Power)	SFA	Retrofit	5944	2.23%	132.6	0.107	0.700	0.107	0.580	2	\$22.50	Attached SF existing homes with non-electric heat and room AC	16.2%	0.0%
813	Direct (Real Time) Feedback	MF	Retrofit	13694	6.15%	842.2	0.679	0.700	0.679	0.700	3	\$140.00	MF existing homes with electric heat and central AC	8.8%	28.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	13694	2.23%	305.4	0.246	0.700	0.246	0.700	2	\$22.50	MF existing homes with electric heat and central AC	8.8%	0.0%
815	Direct (Real Time) Feedback	MF	Retrofit	4881	6.15%	300.2	0.242	0.700	0.242	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	54.3%	28.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	4881 4981	2.23%	108.8	0.088 0.247	0.700	0.088	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	54.3%	0.0%
817 818	Direct (Real Time) Feedback Indirect Feedback (O-Power)	MF	Retrofit	4981 4981	6.15% 2.23%	306.3	0.247	0.700	0.247 0.090	0.580	3	\$140.00 \$22.50	MF existing homes with non-electric heat and room AC MF existing homes with non-electric heat and room AC	17.7%	28.0%
818 900	New Construction	MIT	Renofit	4201	2.25%	111.1	0.090	0.700	0.090	0.560	4	\$22.30	on existing nomes with non-electric near and room AC	1/./70	0.0%
901	Residential New Construction-Tier 1	SFD	NC	20411	15.00%	3061.7	1.305	0.700	0.495	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	21.4%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	20411	30.00%	6123.3	2.610	0.700	0.990	0.700	15		New construction detached SF homes w/ electric heat and Central AC	21.4%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	8489	15.00%	1273.4	0.105	0.700	0.390	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central AC	46.3%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	8489	30.00%	2546.7	0.210	0.700	0.780	0.700	15	\$5,628.00	New construction detached SF homes w/ non-electric heat and Central AC	46.3%	0.0%
905	Residential New Construction Tier 1	MF	NC NC	11941 11941	15.00% 30.00%	1791.2 3582.3	0.525 1.050	0.700	0.315 0.630	0.700	15 15	\$2,135.50 \$3,203.25	New construction MF homes with electric heat and central AC New construction MF homes with electric heat and central AC	21.4%	0.0%
							1.050	0.700	0.030	0.700	15	\$3,203.25	new construction MF nomes with electric neat and central AC	21.4%	0.0%
906 907	Residential New Construction Tier 2 Residential New Construction Tier 1	MF	NC	5371	15.00%	805.7	0.060	0.700	0.210	0.700	15	\$1,876.00	New construction MF homes with non-electric heat and Central AC	46.3%	0.0%

Measure	Assumptions Sources - Duquesne		DOD						Per Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100	Water Heating End Use							*See CF		*See CF					CF Note 1: The coincidence factor for this energy efficiency measure was set to
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1	PA TRM	Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	<ol> <li>because the kW demand impact for this measure was already on a coincident peak basis.</li> </ol>
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	PA Baseline	PA Baseline	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PA Baseline	PA Baseline	costs uses the $925$ for a 2.0 water heater and adds $50$ premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PA Baseline / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PA Baseline	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	PA Baseline	PA Baseline	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PA Baseline	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PA Baseline / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PA Baseline	PA Baseline	
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	PA Baseline	PA Baseline	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PA Baseline	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PA Baseline / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PA Baseline / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PA Baseline	PA Baseline	
200	Lighting						Energy Star	CT	Energy Star						
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	calculator / GDS calculation	Lighting CF Report	calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 because the kW demand impact for this measure was already on a coincident peak basis.
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM CT	PA TRM	PA TRM	PA TRM MID-	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	Lighting CF Report CT	PA TRM	PA TRM	ATL TRM MID-	Home Depot	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	Lighting CF Report CT	PA TRM	PA TRM	ATL TRM MID-	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	

Measure	Assumptions Sources - Duquesne								D. U.S.						
Measure	: Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whrer-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8555011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8555011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight LED Nightlight	SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Amazon.com Lowe's	PA Baseline PA Baseline	PA Baseline PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM CT	PA TRM / GDS calculation PA TRM /	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	GDS calculation	PA TRM / GDS calculation	Lighting CF Report CT	GDS calculation	PA TRM	PA TRM MID-	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM PA TRM /	MID-ATL TRM	Lighting CF Report	MID-ATL TRM PA TRM /	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	GDS calculation PA TRM /	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
227	ENERGY STAR Holiday Lights	SFA	ROB	-		PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&ppc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&lpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2DOccupancy%2DSensors&FORM=CPCA&dppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM CT	PA TRM	PA TRM	PA TRM MID-	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	Lighting CF Report CT	PA TRM	PA TRM	ATL TRM MID-	Home Depot	GDS Estimate	PA Baseline	
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	Lighting CF Report	PA TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	

Measure	Assumptions Sources - Duquesne										_				
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)		Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation PA TRM /	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM MID-	Home Depot	GDS Estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation PA TRM /	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report CT	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-1bu-decora-passive-infrared-wall-switch- occupancy-servery where-to- buy/A76D28E5A37AB85350117q=Residential+Occupancy+&ensors&dpf=0&d pq=Residential%2DOccupancy%2bSensors&HORA=CPAdeppc=16 http://www.bing.com/shopping/pr180-1bu-decora-passive-infrared-wall-switch- http://www.bing.com/shopping/pr180-1bu-decora-passive-infrared-wall-switch- server
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	occupancy-sensor/where-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&dFORM=CPCA&dppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whrere-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CJPCA&lppc=16
300	Appliances											DECO ( 1			
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline	PA Baseline	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline Duquesne, PA	PA Baseline	
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PA Baseline	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PA Baseline	PA Baseline	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	Duquesne	EnergyStar Market Penetration Summary	
312 313	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	SFD SFD	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	PA Baseline PA Baseline	PECO 2011 PA Baseline	
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	Duquesne	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search2q=whole+house+fan&form=QBRE&ea q=whole+house+fan&iad=&cct=&cqs=a&pq=whole+house+fan&sp=&crt=Com pletions&ctk=&spv=&sl=E≻=&sst=*=AAAAAAAA#a0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline	PA Baseline	
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline	PA Baseline	
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators

Measure	Assumptions Sources - Duquesne														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Nores
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PA Baseline	PA Baseline	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PATRM	PATRM	PA TRM	Lowe's Home	PA Baseline	PA Baseline	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM OHIO	Depot/Lowe's EnergyStar	PA Baseline	PA Baseline EnergyStar Market	
330 331	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	SFA SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA TRM	Calculator	Duquesne PA Baseline	Penetration Summary PECO 2011	
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	PA TRM PA TRM	PATRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM		MID-ATL TRM	PA Baseline	PA Baseline	
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	Duquesne	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/scarch2q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ect=&qs=n&pq=whole+house+fan&sp=&rt=Com pletions&tk=&spv=&sl=E≻=&est=&cast=AAAAAAAAA#xtby0
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline	PA Baseline	
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PA Baseline	PA Baseline	
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PA Baseline	PA Baseline	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's Home	PA Baseline	PA Baseline	
348	Energy Star chest freezer		ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM OHIO	Depot/Lowe's EnergyStar	PA Baseline	PA Baseline EnergyStar Market	
349 350	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA TRM	Calculator	Duquesne PA Baseline	Penetration Summary PECO 2011	
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM		MID-ATL TRM	PA Baseline	PA Baseline	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	PA Baseline	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	Duquesne	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search2q=whole+house+fan&form=QBRE&ea q=whole+house+fan&aid=&cct=&cqs=a&pq=whole+house+fan&sp=&crt=Com pletions&ck=&spv=&sl=E≻=&sst=*=AAAAAAA#x0y0
400	LEICHONES											PPL PY2 Report-		EnergyStar Market	
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar	PA Baseline	Penetration Summary EnergyStar Market	Savings - PA TRM p.122
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary EnergyStar Market	
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	Penetration Summary EnergyStar Market	
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy PPL PY2 Report-	PA Baseline	Penetration Summary	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL	EnergyStar Market Penetration Summary	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
407	>50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	Codes and Standards Enhancement Initiative	

Measure	Assumptions Sources - Duquesne								<b>D T</b>						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
408	<50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PA Baseline	EnergyStar Market Penetration Summary	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	Palergystar Market	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL	EnergyStar Market Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
416	>50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	Codes and Standards Enhancement Initiative	
417	<50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	Codes and Standards Enhancement Initiative	
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PA Baseline	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market	
423	ENERGY STAR Multifunction	MF	ROB			PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-	PPL	Penetration Summary EnergyStar Market	
424		MF	ROB	-	-	PA TRM	PA TRM	PA TRM		PA TRM		Cited EnergyStar		Penetration Summary EnergyStar Market	
424	ENERGY STAR Printer >50 in television	MF	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM	PA TRM PA TRM	PA TRM	PA TRM PA TRM	Best Buy EnergyStar Calculator	PPL PA Baseline	Penetration Summary Codes and Standards Enhancement Initiative	
426	<50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	Codes and Standards Enhancement Initiative	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
500 501	Pool High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings- PA and Mid Atlantic TRMs
502	Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - kW <sub>ss</sub> and kW <sub>VED</sub> parameters taken from Ohio TRM
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
504	Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VED}$ parameters taken from Ohio TRM
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	Duquesne	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VPD}$ parameters taken from Ohio TRM
600	HVAC (Envelope)										0.000				
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate; ** wall insulation = area of walls - area of windows * price per sq ft

Aeasure	Assumptions Sources - Duquesne		ROB						Per Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Summer Demand Savings	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	Home Depot	PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	Home Depot	PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
630 631	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD SFD	ROB Retrofit	RemRate RemRate	-	RemRate RemRate	RemRate RemRate	PA TRM PA TRM	RemRate RemRate	PA TRM PA TRM	PA TRM GDS Measure Life Report		PA Baseline PA Baseline	PA Baseline PA Baseline	3325 per 100 square feet of windows multiplied by square footage from \$1.55/sq ft (from Navigant) multiplied by square footage estimate
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	

Measure /	Assumptions Sources - Duquesne														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)		Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation

Measure	Assumptions Sources - Duquesne									-					
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM		PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
670	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM		PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	
675	ENERGY STAR Windows HVAC Duct Sealing (Cost per typical multi-family home)	MF	ROB Retrofit	RemRate	-	RemRate	RemRate	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM PA TRM	DEER database,	PA Baseline PA Baseline	PA Baseline PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
680	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PA Baseline	PA Baseline	
700	HVAC (Equipment/Controls) Programmable Thermostat (ASHP)	SED	Retrofit	RemRate		REMRate	REMRate/TRM	*See CF	REMRate/T	*See CF	PA TRM	Home Depot	PA Baseline	PA Baseline	
701	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	Note 1 PA TRM	RM RemRate	Note 1 PA TRM	PA TRM		PA Baseline	PA Baseline	
702	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PA Baseline	PA Baseline	source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
				te											per ton) plus \$250 premium for desuperheater

Measure /	Assumptions Sources - Duquesne								Per Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings		Per Unit Winter Demand Savings (kW)	Winter CF	Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
706	Duetless Mini-Split Heat Pumps	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PA Baseline	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
707 708	Ground Source Heat Pumps (GSHP)	SFD SFD		RemRate RemRate	-	REMRate REMRate	REMRate REMRate	PA TRM	REMRate REMRate	PA TRM	PA TRM	PPL(email)	PA Baseline	PA Baseline PA Baseline	
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons) Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD		RemRate	-	REMRate	REMRate	PA TRM PA TRM		PA TRM PA TRM	PA TRM PA TRM	Navigant 2011 Navigant 2011	PA Baseline PA Baseline	PA Baseline PA Baseline	
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM MID-	Home Depot	PA Baseline	PA Baseline	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	ATL TRM	MID-ATL TRM	PA Baseline	GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PA Baseline	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	PA Baseline	PA Baseline	
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	Marchine Marchine State and Accounter to the design of the state of th
718 719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA SFA	ROB ROB	RemRate RemRate	-	RemRate	RemRate	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM PA TRM	DEER database	PA Baseline PA Baseline	PA Baseline PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
								-							source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
720	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email) Strategies to	PA Baseline	PA Baseline	per ton) plus \$250 premium for desuperheater
721	Ductless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PA Baseline	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20HNA1%20.pdf
722	Ground Source Heat Pumps (GSHP)	SFA		RemRate	-	REMRate	REMRate	PA TRM			PA TRM	PPL(email)	PA Baseline	PA Baseline	
723 724	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons) Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA SFA	- ACOD	RemRate RemRate	-	REMRate REMRate	REMRate REMRate	PA TRM PA TRM	REMRate REMRate	PA TRM PA TRM	PA TRM PA TRM	Navigant 2011 Navigant 2011	PA Baseline PA Baseline	PA Baseline PA Baseline	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit		-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	PA Baseline	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM				PA Baseline		
728	Furnace Whistle	SFA	Retrofit						Kivi	PA TRM	PA TRM	Home Depot		PA Baseline	
729				-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM PA TRM	Home Depot Amazon	PA Baseline	PA Baseline GDS Estimate	
	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	- PA TRM	-	PA TRM PA TRM	PA TRM PA TRM			*See CF					Measure cost is an average of the other 6 EDCs
730	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	SFA SFA	ROB ROB	- PA TRM PA TRM	-			Note 1	PA TRM	*See CF Note 1	PA TRM GDS	Amazon	PA Baseline	GDS Estimate	Measure cost is an average of the other 6 EDCs Measure cost is an average of the other 6 EDCs
730 731					-	PA TRM PA TRM / EnergyStar	PA TRM PA TRM /	Note 1 PA TRM	PA TRM PA TRM PA TRM / EnergyStar	*See CF Note 1 PA TRM	PA TRM GDS estimate GDS	Amazon EDC average	PA Baseline PA Baseline	GDS Estimate PA Baseline	
	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM PA TRM / EnergyStar calc.	PA TRM PA TRM / EnergyStar calc.	Note 1 PA TRM PA TRM *See CF	PA TRM PA TRM / EnergyStar calc. REMRate/T RM REMRate/T RM	*See CF Note 1 PA TRM PA TRM *See CF	PA TRM GDS estimate GDS estimate	Amazon EDC average EDC average	PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline	
731	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP)	SFA MF	ROB Retrofit	PA TRM RemRate	-	PA TRM / PA TRM / EnergyStar calc. REMRate	PA TRM PA TRM / EnergyStar calc. REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1	PA TRM PA TRM / EnergyStar calc. REMRate/T RM REMRate/T	*See CF Note 1 PA TRM PA TRM *See CF Note 1	PA TRM GDS estimate GDS estimate PA TRM	Amazon EDC average EDC average Home Depot	PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline PA Baseline	
731 732	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance)	SFA MF MF	ROB Retrofit Retrofit	PA TRM RemRate RemRate		PA TRM / PA TRM / EnergyStar calc. REMRate REMRate	PA TRM PA TRM / EnergyStar calc. REMRate/TRM REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1 PA TRM	PA TRM PA TRM / EnergyStar calc. REMRate/T RM REMRate/T RM REMRate/T RM REMRate/T	*See CF Note 1 PA TRM PA TRM *See CF Note 1 PA TRM	PA TRM GDS estimate GDS estimate PA TRM PA TRM	Amazon EDC average EDC average Home Depot Home Depot	PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline PA Baseline PA Baseline	Measure cost is an average of the other 6 EDCs Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
731 732 733	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA MF MF MF	ROB Retrofit Retrofit ROB	PA TRM RemRate RemRate RemRate		PA TRM / PA TRM / EnergyStar calc. REMRate REMRate	PA TRM PA TRM / EnergyStar cale. REMRate/TRM REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM	PA TRM PA TRM / EnergyStar cale. REMRate/T RM REMRate/T RM REMRate/T RM REMRate/T RM	*See CF Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM	PA TRM GDS estimate GDS estimate PA TRM PA TRM PA TRM	Amazon EDC average EDC average Home Depot DEER database	PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	Measure cost is an average of the other 6 EDCs Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
731 732 733 734	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA MF MF MF MF	ROB Retrofit ROB ROB	PA TRM RemRate RemRate RemRate		PA TRM / PA TRM / EnergyStar calc. REMRate REMRate REMRate	PA TRM / EnergyStar calc. REMRate/TRM REMRate/TRM REMRate/TRM REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM	PA TRM PA TRM / EnergyStar calc. REMRate/T RM REMRate/T RM REMRate/T RM	*See CF Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM	PA TRM GDS estimate GDS estimate PA TRM PA TRM PA TRM	Amazon EDC average EDC average Home Depot Home Depot DEER database	PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	Measure cost is an average of the other 6 EDCs Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant eited the 2008 DEER database as the source
731 732 733 734 735	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton) GSHP w/ Desuperheater	SFA MF MF MF MF	ROB Retrofit ROB ROB ROB	PA TRM RemRate RemRate RemRate RemRate		PA TRM PA TRM / EnergyStar calc. REMRate REMRate REMRate REMRate	PA TRM / EnergyStar calc. REMRate/TRM REMRate/TRM REMRate/TRM REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM / EnergyStar calc. REMRate/T RM REMRate/T RM REMRate/T RM REMRate/T RM REMRate/T RM	*See CF Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM	PA TRM GDS estimate GDS estimate PA TRM PA TRM PA TRM PA TRM	Amazon EDC average EDC average Home Depot DEER database DEER database DEER database PPL (email) Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy	PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	Measure cost is an average of the other 6 EDCs Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the tource Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the tource Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source cost source cost of the sou
731 732 733 734 735 736	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton) GSHP w/ Desuperheater Ductless Mini-Split Heat Pumps	SFA MF MF MF MF	ROB Retrofit ROB ROB ROB	PA TRM RemRate RemRate RemRate RemRate		PA TRM PA TRM / Energystar calc: REMRate REMRate REMRate REMRate	PA TRM / EnergyStar calc. REMRate/TRM REMRate/TRM REMRate/TRM REMRate/TRM	Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM / EnergyStar calc REMRate/T RM REMRate/T RM REMRate/T RM REMRate/T RM	*See CF Note 1 PA TRM PA TRM *See CF Note 1 PA TRM PA TRM PA TRM PA TRM	PA TRM GDS estimate GDS estimate PA TRM PA TRM PA TRM PA TRM PA TRM	Amazon EDC average EDC average Home Depot Home Depot DEER database DEER database DEER database PPL (email) Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Partnerships	PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline PA Baseline	GDS Estimate PA Baseline	Measure cost is an average of the other 6 EDCs Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the tource Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the tource Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source cost source cost of the sou

Measure	Assumptions Sources - Duquesne						1		Dog Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/T RM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	PA Baseline	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PA Baseline	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PA Baseline	Duquesne	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	PA Baseline	Duquesne	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	PA Baseline	Duquesne	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PA Baseline	Duquesne	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS estimate	PA TRM	Communication	PA Baseline	Duquesne	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS estimate	PA TRM	with Opower Vermont TRM	PA Baseline	Duquesne	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS	PA TRM	Communication with Opower	PA Baseline	Duquesne	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PA Baseline	Duquesne	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PA Baseline	Duquesne	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
900	New Construction					-		estimate		estimate		with Opower			
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
905	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Elec. Use	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)		Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
907	Residential New Construction Tier 1	MF	NC	RemRate		RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

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Amazon: Retail prices derived from Amazon's website Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report Best Buy: Retail prices derived from Best Buy's website Bing.com: Retail prices derived from Bing Shopping Codes and Standards Enhancement Initiative CT Lighting CF Report: Connecticut Lighting Coincidence Factor Report DEER database: California database of Energy Efficiency Resources Duquesne Duquesne saturation data EnergyStar: government-backed website that helps protect the environment through superior energy efficiency EnergyStar 2011 Savings and Costs EnergyStar Calculator: service provided by EnergyStar to help estimate savings, useful life, and cost EnergyStar Homes Report EnergyStar Penetration Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010) GDS: GDS Associates Calculation/Assumption. See measure-specific notes. GDS fusion and the state/regional level. GDS fusion and professional judgement due to lack of available primary researche at the state/regional level. GDS Measure Life Report: SPWG and GDS's document of a set of measure life values for selected measures Google.com: Retail prices derived from Google Shopping Home Depot: Retail prices derived from Home Depot's website LOWES: Retail prices derived from Lowe's website. MID-ATL TRM: Mid-Atlantic Technical Reference Manual. Version 2.0 Navigant 2011: describes methods and results of ICS, commissioned by the EM&V Forum Research Subcommittee to update incremental costs for measures Opower: information used for calculating indirect feedback Ohio TRM: Ohio Technical Reference Manual PA Baseline: Pennsylvania Baseline study, conducted by GDS PA TRM: Pennsylvania Technical Reference Manual PA TRM / Ohio TRM: Pennsylvania Technical Reference Manual / Ohio Technical Reference Manual PECO 2011: data calculated from PECO's residential survey PECO email: correspondence with representative(s) at PECO PPL email: correspondence with representative(s) at PPL PPL Quarterly Report: documents progress and effectiveness of EE&C accomplishments for PPL through end of PY3, Quarter 2 REM/Rate: Building Energy Modeling Software. Prototype homes were modeled based on average characteristics using the PECO Energy Baseline Study, February 2011 The American Council for an Energy-Efficient Economy: Report on technical and policy issues relating to energy efficiency Vermont TRM: Vermont Technical Reference Manual

		Home		Base		Annual	Per Unit		Per Unit						
Measure	Measure Name	Type (SFA, SFD,	ROB vs. Retrofit vs. NC	Elec. Use	% Elec. Savings	Elec.	Winter Demand	Winter CF	Summer Demand	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
		MF)	vs. NC	(kWh)	-	(kWh)	Savings (kW)		Savings (kW)						1
100	Water Heating End Use	NIF)					(KW)		(KW)						
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	45.3%	16.5%
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	45.3%	16.5%
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	45.3%	16.5%
104	Solar Water Heaters	SFD	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	45.3%	0.0%
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	45.3%	0.0%
106	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	SFD	ROB Retrofit	-	-	2202.0 124.0	0.202 0.011	1.000	0.202 0.011	1.000	14 13	\$975.00 \$18.00	Homes w/Electric Water Heater	45.3% 45.3%	0.0%
107	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.011	1.000	0.011	1.000	9	\$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	72.5%	85.2%
108	Low Flow Showerneads- 1.5 GFM Low Flow Faucet Aerators	SFD	Retrofit	-	-	61.0	0.042	1.000	0.042	1.000	12	\$2.00	Homes w/Electric Water Heater	158.6%	93.2%
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	45.3%	14.2%
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	44.4%	16.5%
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	44.4%	16.5%
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14		Homes w/Electric Water Heater	44.4%	16.5%
114	Solar Water Heaters	SFA	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	44.4%	0.0%
115	Heat Pump Water Heaters- 2.0 Energy Factor Heat Pump Water Heaters- 2.3 Energy Factor	SFA SFA	ROB ROB	-	-	1914.0 2202.0	0.175	1.000	0.175 0.202	1.000	14 14	\$925.00 \$975.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	44.4%	0.0%
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	124.0	0.202	1.000	0.202	1.000	13	\$18.00	Homes w/Electric Water Heater	44.4%	11.9%
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	71.1%	85.2%
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	155.5%	93.2%
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	44.4%	14.2%
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	67.4%	16.5%
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	67.4%	16.5%
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	67.4%	16.5%
124	Solar Water Heaters Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14 14	\$8,164.00 \$925.00	Homes w/Electric Water Heater	67.4% 67.4%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB		-	2202.0	0.202	1.000	0.175	1.000	14	\$975.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	67.4%	0.0%
120	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	67.4%	11.9%
	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9		Homes w/Electric Water Heater	107.8%	85.2%
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	235.7%	93.2%
130	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	67.4%	14.2%
200	Lighting											-			
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20		Homes with ceiling fans that have light fixtures	197.5%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	21.1%	19.1%
203	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	21.1%	19.1% 18.3%
204 205	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD SFD	ROB ROB	-	-	31.3	0.024	0.298	0.024	0.050	6	\$1.25 \$1.25	Homes with 60 Watt incandescent bulbs Homes with 75 Watt incandescent bulbs	100.0%	18.3%
203	ENERGY STAR CFL Bubs (screw-in) 10 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	45.1	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	18.3%
200	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with 100 wait includescent builds	100.0%	18.3%
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB			31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	18.3%
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB		-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	350.0%	18.3%
211	ENERGY STAR Torchieres	SFD	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	18.3%
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	1.8%	17.5%
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	1.8%	17.5%
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	1.8%	17.5%
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	103.0%	35.8%
217	Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	21.1%	19.1%
218	LED Nightlight	SFA	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	21.1%	19.1%
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8% 35.8%
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA SFA	ROB ROB	-	-	31.3 45.1	0.029	0.298	0.029 0.041	0.050	6	\$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR CFL Builds (screw-in) 100 watt Incan. 10 a 25 watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	-	-	27.0	0.041	0.298	0.041	0.050	20	\$1.25 \$15.00	Homes with 100 watt incandescent builds Homes with indoor fixtures	100.0%	35.8%
222	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	31.7	0.030	0.030	0.031	0.050	13.7	\$13.00	Homes with muoor instures Homes with general service lamps	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamp	SFA	ROB		-	71.2	0.031	0.298	0.070	0.050	20	\$20.00	Homes with reflector lamps	100.0%	35.8%
224	ENERGY STAR Dutdoor Fixture (hard wired, pin-based)	SFA	ROB	-	-	81.7	0.070	0.258	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	35.8%
225	ENERGY STAR Torchieres	SFA	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	35.8%
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	49.0%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	21.1%	19.1%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	21.1%	19.1%
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	28.0%
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	28.0%
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.0%
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	28.0%
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	28.0%
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	28.0%
	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00 \$25.00	Homes with outdoor fixtures Homes with torchieres	100.0%	28.0%
240	ENERGY STAR Torchieres	MF	ROB			60.4	0.066								

Measure .	Assumptions - Met-Ed	Home					Per Unit		Per Unit				1	_	
		Туре	ROB vs.	Base		Annual	Winter		Summer						1
Measure	Measure Name	(SFA,	Retrofit	Elec.	% Elec.	Elec.	Demand	Winter	Demand		Useful	Incremental	Measure/End Use Description	Base	EE
		SFD,	vs. NC	Use	Savings	Savings	Savings	CF	Savings	CF	Life	/Full Cost		Saturation	Saturation
		MF)	10.110	(kWh)		(kWh)	(kW)		(kW)						
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
300	Appliances														
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	24.4%	14.8%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	24.4%	14.8%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	70.4%	31.8%
304	Energy Star side mount freezer without door ice	SED	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	4.5%	31.8%
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	14.4%	31.8%
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	31.8%
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	29.8%	31.8%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	15.2%	8.4%
309	Energy Star upright with automatic defrost	SFD	ROB		-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	12.7%	8.4%
310	Energy Star chest freezer	SFD	ROB		-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	30.1%	8.4%
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0	0.011	1.000	0.011	1.000	12	\$0.00	Homes with dehumidifiers	48.1%	85.3%
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	82.6%	95.1%
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	44.6%	24.6%
313	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	52.7%	24.6%
314	ENERGY STAR Clothes Washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	30.7%	35.3%
315	ENERGY STAR Dishwashers- with Electric water Heating ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat Homes with dishwasher and gas heat	30.7%	35.3%
316				-	-	33.0 98.0	0.025	0.000	0.023	0.580	10			47.5%	23.8%
	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0 2.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	47.5%	23.8%
318 319	Energy Star Exhaust Fans	SFD	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans	100.0%	9.1%
319	Energy Star Residential Whole House Fans Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	Retrofit	-	-	229.0	0.000	0.620	0.000	0.620	15	\$348.00 \$120.00	Homes with residential whole house fans	10.2%	9.1%
~=~				-	-								Homes with secondary refrigerators		
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	12.2%	14.8%
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	83.1%	31.8%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	2.7%	31.8%
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	0.0%	31.8%
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	31.8%
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	18.0%	31.8%
327	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	12.6%	8.4%
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	11.1%	8.4%
329	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	23.7%	8.4%
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	20.0%	85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	69.2%	95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	34.8%	24.6%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	55.7%	24.6%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	25.5%	35.3%
335	ENERGY STAR Dishwashers- with Gas Heat	SEA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	31.6%	35.3%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	_		98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	63.8%	23.8%
337	Energy Star Exhaust Fans	SFA	ROB			2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
338	Energy Star Residential Whole House Fans	SFA	Retrofit			229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	3.6%	9.1%
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with residential whole house fails Homes with secondary refrigerators	4.3%	14.8%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	4.3%	14.8%
340	Energy Star top mount freezer without door ice	MF	ROB	-	-	1055.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with secondary reingerators	63.7%	31.8%
	0/ 1	MF	ROB	-	-		0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	2 7%	31.8%
342 343	Energy Star side mount freezer without door ice Energy Star bottom mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00		2.7%	31.8%
343 344		MF	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with bottom mount freezers without door ice	0.0%	31.8%
344 345	Energy Star top mount freezer with door ice			-	-			1.000	0.013	1.000	13		Homes with top mount freezers with door ice	0.0%	31.8%
0.10	Energy Star side mount freezer with door ice	MF	ROB	-	-	133.0	0.013		0.0.00			\$95.00	Homes with side mount freezers with door ice		011071
346	Energy Star upright with manual defrost	MF	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	0.9%	8.4%
347	Energy Star upright with automatic defrost	MF	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	0.6%	8.4%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	21.8%	8.4%
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	11.5%	85.3%
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	61.3%	95.1%
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	46.6%	24.6%
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	23.0%	24.6%
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	15.5%	35.3%
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	15.5%	35.3%
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	MF homes with room AC	59.2%	23.8%
356	Energy Star Exhaust Fans	MF	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	10.4%	9.1%
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	121.8%	49.0%
402	ENERGY STAR Copier	SFD	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	9.2%	82.7%
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	11.0%	6.0%
100	ENERGY STAR Monitor	SFD	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	64.8%	72.3%
404		SFD	ROB			78.0	0.002	1.000	0.011	1.000	6	\$1.00	Homes with a desitop computer Homes with a multifunction printer	36.8%	63.3%
404			ROD	-	-								nomes with a multifulction printer		69.7%
405	ENERGY STAR Multifunction ENERGY STAR Drinter	-	DOD.			26.0	0.004	1,000	0.004	1 000		\$1.00	Homos with a printer	37. 00/.	
405	ENERGY STAR Printer	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	36.8%	
405		-	ROB	-	-	26.0 481.0 136.0	0.004 0.074 0.263	1.000 0.280 0.280	0.004 0.074 0.263	1.000 0.280 0.280	5 15 15	\$1.00 \$1.00 \$1.00	Homes with a printer Homes with a television Homes with a television	36.8% 48.0% 154.2%	58.0%

410         El           411         El           412         El           413         El           414         El           415         El           416         >!           417 </td 418         Sn           419         El           420         El           422         El           423         El           424         El           424         El           424         El           425 </td 426 </td	Measure Name mart Strip Plug Outlets NERGY STAR Computer NERGY STAR Fax Machine NERGY STAR Fax Machine NERGY STAR Monitor	Home Type (SFA, SFD, MF) SFD SFA SFA	ROB vs. Retrofit vs. NC Retrofit ROB	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh) 124.0	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
409         Sn           410         E1           411         E1           412         E1           413         E1           414         E1           415         E1           416         S1           417         <1           418         Sn           419         E1           420         E1           421         E1           422         E1           423         E1           425         >1           426         <1	mart Strip Plug Outlets NERGY STAR Computer NERGY STAR Copier NERGY STAR Fast Machine NERGY STAR Monitor	(SFA, SFD, MF) SFD SFA	Retrofit vs. NC Retrofit	Elec. Use		Elec. Savings (kWh)	Demand Savings (kW)	CF	Demand Savings				Measure/End Use Description		
409         Sn           410         E1           411         E1           412         E1           413         E1           414         E1           415         E1           416         S1           417         <1           418         Sn           419         E1           420         E1           421         E1           422         E1           423         E1           425         >1           426         <1	mart Strip Plug Outlets NERGY STAR Computer NERGY STAR Copier NERGY STAR Fast Machine NERGY STAR Monitor	SFD, MF) SFD SFA	vs. NC Retrofit	Use		Savings (kWh)	Savings (kW)	CF	Savings				Measure/End Use Description		
410         E           411         E1           412         E1           413         E1           414         E1           415         E1           416         >2           417         <           418         Sn           419         E1           420         E1           422         E1           423         E1           424         E1           424         E1           425         >2           426         <	NERGY STAR Computer NERGY STAR Copier NERGY STAR Fast Machine NERGY STAR Monitor	MF) SFD SFA	Retrofit		-	(kWh)	(kW)			01	Life	/1 un Cost		Saturation	Saturation
410         E           411         E1           412         E1           413         E1           414         E1           415         E1           416         >2           417         <           418         Sn           419         E1           420         E1           422         E1           423         E1           424         E1           424         E1           425         >2           426         <	NERGY STAR Computer NERGY STAR Copier NERGY STAR Fast Machine NERGY STAR Monitor	SFD SFA		(KWII) -	-	· ·			(kW)						
410         E           411         E1           412         E1           413         E1           414         E1           415         E1           416         >2           417         <           418         Sn           419         E1           420         E1           422         E1           423         E1           424         E1           424         E1           425         >2           426         <	NERGY STAR Computer NERGY STAR Copier NERGY STAR Fast Machine NERGY STAR Monitor	SFA		-	-	124.0									
411         E1           412         E1           413         E1           414         E1           414         E1           415         E1           416         >1           417         <1	NERGY STAR Copier NERGY STAR Fax Machine NERGY STAR Monitor		ROB				0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
412         Ei           413         Ei           414         Ei           415         Ei           416         Si           417         Si           418         Si           419         Ei           420         Ei           421         Ei           422         Ei           423         Ei           424         E2           425         Si           426         Si	NERGY STAR Fax Machine NERGY STAR Monitor	SFA		-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	120.0%	49.0%
413         EJ           414         EJ           415         EJ           416         >:           417         <:	NERGY STAR Monitor		ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	6.3%	82.7%
414         EI           415         EI           416         >           417         <		SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	11.0%	6.0%
414         EI           415         EI           416         >           417         <		SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	63.9%	72.3%
415         EI           416         >3           417         <3	NERGY STAR Multifunction	SFA	ROB			78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	25.0%	63.3%
416         >5           417         <3	NERGY STAR Printer	SEA	ROB	_		26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	25.0%	69.7%
417         <8           417         <8	50 in television	SEA	ROB		-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a plinter Homes with a television	46.7%	58.0%
418         Sn           419         E1           420         E1           420         E1           421         E1           422         E1           423         E1           424         E1           425         >5           426         <5	50 in television	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00		132.4%	58.0%
419         E1           420         E1           421         E1           422         E1           423         E1           424         E1           425         >3           426         <5				-	-			0.280	0.265	0.280	5		Homes with a television	100.0%	5.0%
420         E1           421         E1           422         E1           423         E1           424         E1           425         >5           426         <5	mart Strip Plug Outlets	SFA	Retrofit	-	-	124.0	0.020	0.000	0.020	0.000		\$15.00	Homes with Powerstrips	1001071	0.072
421         El           422         El           423         El           424         El           425         > 5           426         < 5	NERGY STAR Computer	MF	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	82.8%	49.0%
422         El           423         El           424         El           425         >5           426         <5	NERGY STAR Copier	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	6.0%	82.7%
423         El           424         El           425         >           426         <	NERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	11.0%	6.0%
424 El 425 > 426 <	NERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	44.0%	72.3%
425 >3 426 <3	NERGY STAR Multifunction	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	23.9%	63.3%
426 <	NERGY STAR Printer	MF	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	23.9%	69.7%
	50 in television	MF	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	32.2%	58.0%
	50 in television	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	117.8%	58.0%
427 Sn	mart Strip Plug Outlets	MF	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
500 P	ool		neuoni				01020		0.020	0.000		<b>Q15.00</b>	riones with rowerships		
500 PC	ligh Efficiency Two-Speed Pool Pump	SFD	ROB			530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	1.3%	10.0%
	ariable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	1.3%	10.0%
				-	-	,		0.000	0.021					110 / 1	10.0%
	ligh Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	4.8%	
	ariable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	4.8%	10.0%
	ligh Efficiency Two-Speed Pool Pump	MF	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	4.6%	10.0%
506 Va	ariable Speed Pool Pumps	MF	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	4.6%	10.0%
600 H	IVAC (Envelope)														
		arm	D . C.	10010	40.5404	0544.0	0.000	0.700	0.000	0.700	4.5	0.4.4.05		10 (0)	05.00/
601 Ai	ir Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	18912	13.56%	2564.0	0.000	0.700	0.000	0.700	15	\$441.87	Detached SF existing homes with electric heat and Central AC	10.6%	95.9%
602 At	ttic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	24586	23.08%	5674.0	2.600	0.700	0.600	0.700	25	\$1,851.85	Detached SF existing homes with electric heat and Central AC	10.6%	92.7%
	ttic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	24586	28.54%	7016.0	3.300	0.700	0.700	0.700	25	\$2,462,46	Detached SF existing homes with electric heat and Central AC	10.6%	92.7%
000	ttic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	24586	29.68%	7296.0	3.400	0.700	0.700	0.700	25	\$3,183,18	Detached SF existing homes with electric heat and Central AC	10.6%	92.7%
				18912	-,		0.800	0.700	0.100	0.700	25	+0,100110		10.6%	52.3%
	ttic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit		8.58%	1622.0						\$2,462.46	Detached SF existing homes with electric heat and Central AC		
606 W	/all Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	29582	32.00%	9467.0	5.100	0.700	0.300	0.700	25	\$2,661.33	Detached SF existing homes with electric heat and Central AC	10.6%	85.1%
607 W	Vall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	29582	36.07%	10670.0	5.700	0.700	0.400	0.700	25	\$3,374.88	Detached SF existing homes with electric heat and Central AC	10.6%	85.1%
	NERGY STAR Windows	SFD	ROB	18912	2.34%	443.0	0.300	0.700	0.000	0.700	20	\$723.13	Detached SF existing homes with electric heat and Central AC	10.6%	89.7%
	loor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	20271	5.85%	1185.0	-0.100	0.700	0.000	0.700	25	\$1.381.38	Detached SF existing homes with electric heat and Central AC	10.6%	48.4%
	loor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SED	Retrofit	20271	6.70%	1359.0	-0.100	0.700	0.000	0.700	25	\$1,751.75	Detached SF existing homes with electric heat and Central AC	10.6%	48.4%
010 11		SFD	Retrofit	18912	12.74%	2409.0	4.300	0.700	0.300	0.700	14	\$497.62		10.6%	31.2%
611 H	IVAC Duct Sealing (Cost per typical single-family home)	SFD	Retront	18912	12./4%	2409.0	4.300	0.700	0.300	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	10.6%	31.2%
612 Ai	ir Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1512	-5.69%	-86.0	0.000	0.700	0.000	0.700	15	\$441.87	Detached SF existing homes with non-electric heat and Central AC	41.2%	95.9%
	01 01 1 0 1 1														
613 At	ttic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1708	11.48%	196.0	0.000	0.700	0.600	0.700	25	\$1,851.85	Detached SF existing homes with non-electric heat and Central AC	41.2%	92.7%
		arm	n 6	4500	4.0.0007		0.000		0.500	0.500	0.5			44.00/	00.50/
614 At	ttic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1708	13.99%	239.0	0.000	0.700	0.700	0.700	25	\$2,462.46	Detached SF existing homes with non-electric heat and Central AC	41.2%	92.7%
615 At	ttic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1708	14.52%	248.0	0.000	0.700	0.700	0.700	25	\$3,183.18	Detached SF existing homes with non-electric heat and Central AC	41.2%	92.7%
	ttic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1512	3.44%	52.0	0.000	0.700	0.100	0.700	25	\$2,462.46	Detached SF existing homes with non-electric heat and Central AC	41.2%	52.3%
	Vall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1541	1.69%	26.0	0.000	0.700	0.400	0.700	25	\$2,661.33	Detached SF existing homes with non-electric heat and Central AC	41.2%	85.1%
		SFD	Retrofit	1541	1.89%	20.0	0.000	0.700	0.400	0.700	25	\$3,374.88		41.2%	85.1%
	/all Insulation - R0 to R19 (Cost Per Square Foot Installed)						0.000	00100	0.000	0.100		10,01100	Detached SF existing homes with non-electric heat and Central AC		001070
619 El	NERGY STAR Windows	SFD	ROB	1512	-6.81%	-103.0	0.000	0.700	0.000	0.700	20	\$723.13	Detached SF existing homes with non-electric heat and Central AC	41.2%	89.7%
620 Fl	loor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1340	-11.19%	-150.0	0.000	0.700	0.000	0.700	25	\$1,381.38	Detached SF existing homes with non-electric heat and Central AC	41.2%	48.4%
		1		1											1
621 Fl	loor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1340	-12.84%	-172.0	0.000	0.700	0.000	0.700	25	\$1,751.75	Detached SF existing homes with non-electric heat and Central AC	41.2%	48.4%
021 11	ioor insulation - Ro to R-19 (Cost Per Square Poor installed)	31.12	Renom	1,540	-12.04/0	-172.0	0.000	0.700	0.000	0.700	25	ş1,/51./5	Detached 51° existing nomes with non-electric near and Central AC	41.270	40.470
(00 1)		arm	D . C.	1510	40.4007	102.0	0.000	0.700	0.200	0.700	14	0.407.40		44.007	24.00/
622 H	IVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1512	12.10%	183.0	0.000	0.1.0.0	0.300		14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	41.2%	31.2%
623 Ai	ir Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1293	-5.65%	-73.0	0.000	0.700	0.200	0.580	15	\$441.87	Detached SF existing homes with non-electric heat and room AC	37.5%	95.9%
	ttic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1539	15.98%	246.0	0.000	0.700	0.600	0.580	25	\$1,851.85	Detached SF existing homes with non-electric heat and room AC	37.5%	92.7%
	ttic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1539	19.17%	295.0	0.000	0.700	0.800	0.580	25	\$2,462.46	Detached SF existing homes with non-electric heat and room AC	37.5%	92.7%
				1539	19.17%	305.0	0.000	0.700	0.800	0.580	25	\$3,183,18		37.5%	92.7%
	ttic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1539		305.0 59.0	0.000	0.700	0.800	0.580	25		Detached SF existing homes with non-electric heat and room AC	37.5%	92.7% 52.3%
627 At	ttic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit		4.56%				0.00			\$2,462.46	Detached SF existing homes with non-electric heat and room AC		
	/all Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1354	3.99%	54.0	0.000	0.700	0.400	0.580	25	\$2,661.33	Detached SF existing homes with non-electric heat and room AC	37.5%	85.1%
628 W	/all Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1354	4.51%	61.0	0.000	0.700	0.400	0.580	25	\$3,374.88	Detached SF existing homes with non-electric heat and room AC	37.5%	85.1%
628 W 629 W	NERGY STAR Windows	SFD	ROB	1293	-6.50%	-84.0	0.000	0.700	0.100	0.580	20	\$723.13	Detached SF existing homes with non-electric heat and room AC	37.5%	89.7%
628 W 629 W 630 El	loor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1122	-13.37%	-150.0	0.000	0.700	0.000	0.580	25	\$1,381.38	Detached SF existing homes with non-electric heat and room AC	37.5%	48.4%
628 W 629 W 630 El 631 Fl	loor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1122	-15.24%	-171.0	0.000	0.700	0.000	0.580	25	\$1,751.75	Detached SF existing homes with non-electric heat and room AC	37.5%	48.4%
628 W 629 W 630 El 631 Fl	the and the to te to (cost ter square root instance)			1000	1.1/0/	45.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	37.5%	21.00/
628         W           629         W           630         E1           631         F1           632         F1		CED													31.2%
628         W           629         W           630         E1           631         F1           632         F1	WAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1293	1.16%	15.0	0.000	0.700	0.000	0.560	14	\$497.0Z	Detached 51° existing nomes with non-electric near and room AC	511570	
628         W           629         W           630         E1           631         F1           632         F1           633         H	WAC Duct Sealing (Cost per typical single-family home)			1293	16.73%	1957.0	0.000	0.700	0.000	0.580	14				95.9%
628         W           629         W           630         El           631         Fl           632         Fl           633         H           634         Añ	IVAC Duct Sealing (Cost per typical single-family home) ir Sealing (cost per sf of living space for a typical single-family home)	SFD SFA SFA	Retrofit Retrofit		16.73%							\$287.37	Attached SF existing homes with electric heat and Central AC	16.2%	
628         W           629         W           630         El           631         Fl           632         Fl           633         H           634         Ari           635         Ari	WAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	11697		1957.0	0.000	0.700	0.000	0.700	15				95.9%

Measure .	Assumptions - Met-Ed														
		Home		Base		Annual	Per Unit		Per Unit						
		Туре	ROB vs.	Elec.	% Elec.	Elec.	Winter	Winter	Summer	Summer	Useful	Incremental		Base	EE
Measure	Measure Name	(SFA,	Retrofit	Use	Savings	Savings	Demand	CF	Demand	CF	Life	/Full Cost	Measure/End Use Description	Saturation	Saturation
		SFD,	vs. NC	(kWh)	ouringo	(kWh)	Savings	<u> </u>	Savings					outdration	outdration
		MF)					(kW)		(kW)						
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1236	88.03%	1088.0	0.200	0.700	0.000	0.700	25	\$1,601.46	Attached SF existing homes with electric heat and Central AC	16.2%	52.3%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	16087	24.17%	3889.0	1.900	0.700	0.200	0.700	25	\$2,228.29	Attached SF existing homes with electric heat and Central AC	16.2%	85.1%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	16087	27.29%	4390.0	2.100	0.700	0.200	0.700	25	\$2,825.73	Attached SF existing homes with electric heat and Central AC	16.2%	85.1%
641	ENERGY STAR Windows	SFA	ROB	11697	8.48%	992.0	0.500	0.700	0.000	0.700	20	\$390.98	Attached SF existing homes with electric heat and Central AC	16.2%	89.7%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	13077	9.25%	1210.0	0.000	0.700	0.000	0.700	25	\$898.38	Attached SF existing homes with electric heat and Central AC	16.2%	48.4%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	13077	10.55%	1380.0	0.000	0.700	0.000	0.700	25	\$1,139.25	Attached SF existing homes with electric heat and Central AC	16.2%	48.4%
		-										-			
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	11697	9.63%	1126.0	3.400	0.700	0.300	0.700	14	\$343.12	Attached SF existing homes with electric heat and Central AC	16.2%	31.2%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1236	-3.64%	-45.0	0.000	0.700	0.000	0.700	15	\$287.37	Attached SF existing homes with non-electric heat and Central AC	33.3%	95.9%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SEA	Retrofit	1295	4 56%	59.0	0.000	0.700	0.200	0.700	25	\$1,204.35	Attached SF existing homes with non-electric heat and Central AC	33.3%	92.7%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1295	5.33%	69.0	0.000	0.700	0.200	0.700	25	\$1.601.46	Attached SF existing homes with non-electric heat and Central AC	33.3%	92.7%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1295	5.48%	71.0	0.000	0.700	0.200	0.700	25	\$2,070.18	Attached SF existing homes with non-electric heat and Central AC	33.3%	92.7%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1236	0.97%	12.0	0.000	0.700	0.000	0.700	25	\$1.601.46	Attached SF existing homes with non-electric heat and Central AC	33.3%	52.3%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1230	0.80%	10.0	0.000	0.700	0.200	0.700	25	\$2,228,29	Attached SF existing homes with non-electric heat and Central AC	33.3%	85.1%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1248	0.96%	12.0	0.000	0.700	0.200	0.700	25	\$2.825.73	Attached SF existing homes with non-electric heat and Central AC	33.3%	85.1%
652	ENERGY STAR Windows	SFA	ROB	1246	-4.85%	-60.0	0.000	0.700	0.000	0.700	20	\$390.98	Attached SF existing homes with non-electric heat and Central AC	33.3%	89.7%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1119	-9.20%	-103.0	0.000	0.700	0.000	0.700	20	\$898.38	Attached SF existing homes with non-electric heat and Central AC	33.3%	48.4%
		SFA	Retrofit	1119	-10.46%	-103.0	0.000	0.700	0.000	0.700	25	\$1.139.25		33.3%	48.4%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retront		-10.46%					0		\$1,139.25	Attached SF existing homes with non-electric heat and Central AC	33.370	40.470
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1236	9.87%	122.0	0.000	0.700	0.300	0.700	14	\$343.12	Attached SF existing homes with non-electric heat and Central AC	33.3%	31.2%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	972	-3.60%	-35.0	0.000	0.700	0.100	0.580	15	\$287.37	Attached SF existing homes with non-electric heat and room AC	45.7%	95.9%
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1048	7.25%	76.0	0.000	0.700	0.300	0.580	25	\$1,204,35	Attached SF existing homes with non-electric heat and room AC	45.7%	92.7%
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1048	6.77%	71.0	0.000	0.700	0.400	0.580	25	\$1,601.46	Attached SF existing homes with non-electric heat and room AC	45.7%	92.7%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1048	6.49%	68.0	0.000	0.700	0.400	0.580	25	\$2,070.18	Attached SF existing homes with non-electric heat and room AC	45.7%	92.7%
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	972	-0.82%	-8.0	0.000	0.700	0.100	0.580	25	\$1.601.46	Attached SF existing homes with non-electric heat and room AC	45.7%	52.3%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1002	2.69%	27.0	0.000	0.700	0.100	0.580	25	\$2,228.29	Attached SF existing homes with non-electric heat and room AC	45.7%	85.1%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1002	2.99%	30.0	0.000	0.700	0.100	0.580	25	\$2,825.73	Attached SF existing homes with non-electric heat and room AC	45.7%	85.1%
	EN TEN ANT ARTEN WAS 1	012.4	non	070	1.500/	11.0	0.000	0.700	0.100	0.580		0000.00		45 504	00.5%
663	ENERGY STAR Windows	SFA	ROB	972	-4.53%	-44.0	0.000	00000	00	0.000	20	\$390.98	Attached SF existing homes with non-electric heat and room AC	45.7%	89.7%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	850	-12.59%	-107.0	0.000	0.700	0.000	0.580	25	\$898.38	Attached SF existing homes with non-electric heat and room AC	45.7%	48.4%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	850	-14.35%	-122.0	0.000	0.700	0.000	0.580	25	\$1,139.25	Attached SF existing homes with non-electric heat and room AC	45.7%	48.4%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	972	1.13%	11.0 860.0	0.000	0.700	0.000	0.580	14	\$343.12	Attached SF existing homes with non-electric heat and room AC	45.7% 14.9%	31.2% 95.9%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	4154	20.70%	365.0	0.000	0.700	0.100	0.700	15 25	\$233.30	MF existing homes with electric heat and central AC	14.9%	95.9% 85.1%
668 669	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	4565	8.00% 9.00%	365.0 411.0	0.000	0.700	0.000	0.700	25	\$1,301.20 \$1,650.08	MF existing homes with electric heat and central AC	14.9%	85.1%
669	ENERGY STAR Windows	MF	ROB	4303	24.77%	1029.0	0.000	0.700	0.000	0.700	23	\$1,650.08	MF existing homes with electric heat and central AC MF existing homes with electric heat and central AC	14.9%	89.7%
670		MF	Retrofit	4154	8.57%	356.0	1.300	0.700	0.100	0.700	14	\$289.05		14.9%	31.2%
672	HVAC Duct Sealing (Cost per typical multi-family home) Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	753	-3.45%	-26.0	0.000	0.700	0.100	0.700	14	\$233.30	MF existing homes with electric heat and central AC MF existing homes with non-electric heat and central AC	30.5%	95.9%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	746	-0.80%	-20.0	0.000	0.700	0.000	0.700	25	\$1.301.20	MF existing homes with non-electric heat and central AC	30.5%	85.1%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	740	-0.80%	-7.0	0.000	0.700	0.000	0.700	25	\$1,501.20	MF existing homes with non-electric heat and central AC	30.5%	85.1%
675	ENERGY STAR Windows	MF	ROB	753	-9.43%	-71.0	0.000	0.700	0.000	0.700	20	\$526.83	MF existing homes with non-electric heat and central AC	30.5%	89.7%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	753	8.63%	65.0	0.000	0.700	0.100	0.700	14	\$289.05	MF existing homes with non-electric heat and central AC	30.5%	31.2%
						-30.0	0.000	0.700	0.100	0.580				36.8%	95.9%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	823	-3.65%						15	\$233.30	MF existing homes with non-electric heat and room AC	001071	
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	816	-0.74%	-6.0	0.000	0.700	0.000	0.580	25	\$1,301.20	MF existing homes with non-electric heat and room AC	36.8%	85.1%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	816	-0.86%	-7.0	0.000	0.700	0.000	0.580	25	\$1,650.08	MF existing homes with non-electric heat and room AC	36.8%	85.1%
680	ENERGY STAR Windows	MF	ROB	823	-9.48%	-78.0	0.000	0.700	0.100	0.580	20	\$526.83	MF existing homes with non-electric heat and room AC	36.8%	89.7%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	823	8.75%	72.0	0.000	0.700	0.000	0.580	14	\$289.05	MF existing homes with non-electric heat and room AC	36.8%	31.2%
700	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	18912	1.91%	361.0	0.000	1.000	0.000	1.000	15	\$25.00	Detached SF homes with heat pumps	8.1%	55.7%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	18912	9.48%	1792.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	8.1%	61.4%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	15470	0.80%	124.0	0.000	0.700	0.100	0.700	12	\$822.00	Detached SF homes with heat pumps	8.1%	4.2%
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	15470	1.12%	174.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Detached SF homes with heat pumps	8.1%	4.2%
705	GSHP w/ Desuperheater	SFD	ROB	19450	11.92%	2318.0	0.000	0.700	0.400	0.700	30	\$11,300.00	Detached SF homes with heat pumps	8.1%	4.2%
							0.000	00000	01100	0.100				0	
706	Ductless Mini-Split Heat Pumps	SFD	ROB	15470	30.87%	4775.0	7.600	0.700	0.700	0.700	15	\$1,200.00	Detached SF homes with heat pumps	8.1%	4.2%
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	15470	11.56%	1789.0	0.000	0.700	0.300	0.700	30	\$10,700.00	Detached SF homes with heat pumps	8.1%	4.2%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	1080	11.48%	124.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	53.0%	4.2%
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	1080	16.11%	174.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	53.0%	4.2%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	1512	9.99%	151.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	53.0%	67.4%
711	Furnace High Efficiency Fan	SFD	Retrofit	1512	29.50%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	80.5%	10.0%
		SFD	Retrofit	1512	1.79%	27.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	53.0%	55.7%
712	Programmable Thermostat (CAC)							<u></u>							10.0%
	Programmable Thermostat (CAC) Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Detached SF existing homes with pon-electric furnace	80.5%	10.0%
712 713 714			Retrofit ROB	- 353	- 100.00%	119.0 353.0	0.050	0.000	0.050	0.580	15 4	\$2.00 \$65.00	Detached SF existing homes with non-electric furnace Detached SF homes with room AC	47.5%	23.8%

	Assumptions - Met-Ed														
		Home		Base		Annual	Per Unit		Per Unit						
		Type	ROB vs.	Elec.	% Elec.	Elec.	Winter	Winter	Summer	e	Useful	Incremental		Base	EE
Measure	Measure Name	(SFA,	Retrofit				Demand		Demand	Summer			Measure/End Use Description		
		SFD,	vs. NC	Use	Savings	Savings	Savings	CF	Savings	CF	Life	/Full Cost		Saturation	Saturation
		MF)	10.110	(kWh)		(kWh)	(kW)		(kW)						
			D C D	252	E 050/	24.0		0.000	0.000	0.500		0.5.00	D. 1 1001 31 AC	47.5%	22.09/
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	Detached SF homes with room AC	4/.5%	23.8%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	11697	1.44%	168.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	4.8%	55.7%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	11697	9.15%	1070.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	4.8%	61.4%
		1									,				1
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	9608	4.80%	461.0	0.000	0.700	0.000	0.700	12	\$822.00	Attached SF existing homes with heat pump	4.8%	4.2%
		1													
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	9608	6.48%	623.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	4.8%	4.2%
500	CCUD / D 1	CEA	D C D D	13591	0.000/	452.0	0.000	0.700	0.300	0.700	30	011 000 00		4.087	1.09/
720	GSHP w/ Desuperheater	SFA	ROB		3.33%	453.0	0.000		0.500	0.700		\$11,300.00	Attached SF existing homes with heat pump	4.8%	4.2%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	9608	33.20%	3190.0	6.900	0.700	0.800	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	4.8%	4.2%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	9608	0.04%	4.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	4.8%	4.2%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	884	11.54%	102.0	0.000	0.000	0.100	0.700	14	\$1.333.00	Attached SF homes with Central AC	51.4%	4.2%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	884	16.18%	143.0	0.000	0.000	0.200	0.700	14	\$2,407.00	Attached SF homes with Central AC	51.4%	4.2%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1236	9.95%	123.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	51.4%	67.4%
726	Furnace High Efficiency Fan	SFA	Retrofit	1236	36.08%	446.0	0.114	1.000	0.114	1.000	18	\$200.00		73.3%	10.0%
													Attached SF homes with non-electric furnace	101011	201071
	Programmable Thermostat (CAC)	SFA	Retrofit	1236	1.21%	15.0	0.000	0.000	0.000	0.700	15	\$25.00	Attached SF homes with Central AC	51.4%	55.7%
728	Furnace Whistle	SFA	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	73.3%	10.0%
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	Attached SF homes with room AC	63.8%	23.8%
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	Attached SF homes with room AC	63.8%	23.8%
731	Programmable Thermostat (ASHP)	MF	Retrofit	4154	1.49%	62.0	0.000	1.000	0.000	1.000	15	\$25.00	MF homes with heat pump	5.2%	55.7%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	4154	8.40%	349.0	0.000	0.700	0.000	0.700	7	\$100.00	ME homes with heat pump	5.2%	61.4%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	3437	4.83%	166.0	0.000	0.700	0.000	0.700	12	\$822.00	MF homes with heat pump	5.2%	4.2%
133	rin obace react unip (Equipment Only) - SEEK 15 to SEEK 15 (5.5 toll)	WIT-	ROD	5457	4.0370	100.0	0.000	0.700	0.000	0.700	12	<i>9022.00</i>	int nomes with near pump	5.270	4.270
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	3437	6.58%	226.0	0.000	0.700	0.000	0.700	12	\$1,644.00	MF homes with heat pump	5.2%	4.2%
131	in obtree react amp (Equipment Only) of Each to to offer to (5.5 ton)			0.001	0.5070							<i>Q</i> 1,011.00	ini noneo waa neu punp		
735	GSHP w/ Desuperheater	MF	ROB	6728	-9.02%	-607.0	0.000	0.700	0.200	0.700	30	\$11,300.00	MF homes with heat pump	5.2%	4.2%
736	Ductless Mini-Split Heat Pumps	MF	ROB	3437	20.45%	703.0	1.700	0.700	0.200	0.700	15	\$1,200.00	MF homes with heat pump	5.2%	4.2%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	3437	-25.95%	-892.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	5.2%	4.2%
	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	538	-23.95%	62.0	0.000	0.000	0.000	0.700	14	\$1,333.00		48.9%	4.2%
738									0.000				MF homes with Central AC		
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	538	16.17%	87.0	0.000	0.000	0.100	0.700	14	\$2,407.00	MF homes with Central AC	48.9%	4.2%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	753	10.09%	76.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	48.9%	67.4%
741	Furnace High Efficiency Fan	MF	Retrofit	753	59.23%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	66.3%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	753	1.20%	9.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	48.9%	55.7%
743	Furnace Whistle	SFD	Retrofit			119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	66.3%	10.0%
743	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	MF homes with room AC	59.2%	23.8%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	MF homes with room AC	59.2%	23.8%
800	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	30281	6.15%	1862.3	1.501	0.700	1.501	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	10.6%	2.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	30281	2.23%	675.3	0.544	0.700	0.544	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	10.6%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	7618	6.15%	468.5	0.378	0.700	0.378	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	41.2%	2.0%
804	Indirect Feedback (O-Power)	SFD	Retrofit	7618	2.23%	169.9	0.137	0.700	0.137	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	41.2%	2.0%
		SFD		7399		455.0	0.367	0.700	0.367	0.580	3			37.5%	2.0%
805	Direct (Real Time) Feedback		Retrofit		6.15%						~	\$140.00	Detached SF existing homes with non-electric heat and room AC		
806	Indirect Feedback	SFD	Retrofit	7399	2.23%	165.0	0.133	0.700	0.133	0.580	2	\$22.50	Detached SF existing homes with non-electric heat and room AC	37.5%	2.0%
807	Direct (Real Time) Feedback	SFA	Retrofit	21190	6.15%	1303.2	1.050	0.700	1.050	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	16.2%	2.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	21190	2.23%	472.5	0.381	0.700	0.381	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	16.2%	2.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	5463	6.15%	336.0	0.271	0.700	0.271	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	33.3%	2.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	5463	2.23%	121.8	0.098	0.700	0.098	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	33.3%	2.0%
810		SFA		5199	6.15%	319.7	0.258	0.700	0.258	0.580	3	\$140.00		45.7%	2.0%
0	Direct (Real Time) Feedback		Retrofit									4110100	Attached SF existing homes with non-electric heat and room AC		
812	Indirect Feedback (O-Power)	SFA	Retrofit	5199	2.23%	115.9	0.093	0.700	0.093	0.580	2	\$22.50	Attached SF existing homes with non-electric heat and room AC	45.7%	2.0%
813	Direct (Real Time) Feedback	MF	Retrofit	12297	6.15%	756.3	0.609	0.700	0.609	0.700	3	\$140.00	MF existing homes with electric heat and central AC	14.9%	2.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	12297	2.23%	274.2	0.221	0.700	0.221	0.700	2	\$22.50	MF existing homes with electric heat and central AC	14.9%	2.0%
815	Direct (Real Time) Feedback	MF	Retrofit	4322	6.15%	265.8	0.214	0.700	0.214	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	30.5%	2.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	4322	2.23%	96.4	0.078	0.700	0.078	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	30.5%	2.0%
817	Direct (Real Time) Feedback	MF	Retrofit	4392	6.15%	270.1	0.218	0.700	0.218	0.580	3	\$140.00	MF existing homes with non-electric heat and central AC	36.8%	2.0%
					0.15% 2.23%					0.500	2	4110100			
0.00	Indirect Feedback (O-Power)	MF	Retrofit	4392	2.25%	97.9	0.079	0.700	0.079	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	36.8%	2.0%
900	New Construction														
		SFD	NC	24313	15.00%	3647.0	1.725	0.700	0.540	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	21.4%	0.0%
901	Residential New Construction-Tier 1	31.12													0.0%
				24212	20.000/	7202.0	3 450	0.700	1.000	0.700	15	87 407 50	Numeration data de l'Elban (11.11.1.10.110.	21 40/	
902	Residential New Construction-Tier 2	SFD	NC	24313	30.00%	7293.9	3.450	0.700	1.080	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	21.4%	
902 903	Residential New Construction-Tier 2 Residential New Construction-Tier 1	SFD SFD	NC NC	8505	15.00%	1275.8	0.105	0.700	0.420	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central	46.3%	0.0%
902 903 904	Residential New Construction-Tier 2 Residential New Construction-Tier 1 Residential New Construction-Tier 2	SFD SFD SFD	NC NC NC	8505 8505	15.00% 30.00%	1275.8 2551.5	0.105 0.210	0.700	0.420 0.840	0.700	15 15	\$3,752.00 \$5,628.00	New construction detached SF homes w/ non-electric heat and Central New construction detached SF homes w/ non-electric heat and Central	46.3% 46.3%	0.0%
902 903 904 905	Residential New Construction-Tier 2 Residential New Construction-Tier 1 Residential New Construction-Tier 2 Residential New Construction Tier 1	SFD SFD SFD MF	NC NC NC NC	8505 8505 11476	15.00% 30.00% 15.00%	1275.8 2551.5 1721.4	0.105 0.210 0.540	0.700 0.700 0.700	0.420 0.840 0.300	0.700 0.700 0.700	15 15 15	\$3,752.00 \$5,628.00 \$2,135.50	New construction detached SF homes w/ non-electric heat and Central New construction detached SF homes w/ non-electric heat and Central New construction MF homes with electric heat and central AC	46.3% 46.3% 21.4%	0.0% 0.0% 0.0%
902 903 904 905 906	Residential New Construction-Tier 2 Residential New Construction-Tier 1 Residential New Construction-Tier 2 Residential New Construction Tier 1 Residential New Construction Tier 2	SFD SFD SFD MF MF	NC NC NC NC	8505 8505 11476 11476	15.00% 30.00% 15.00% 30.00%	1275.8 2551.5 1721.4 3442.8	0.105 0.210 0.540 1.080	0.700 0.700 0.700 0.700	0.420 0.840 0.300 0.600	0.700 0.700 0.700 0.700 0.700	15 15 15 15	\$3,752.00 \$5,628.00	New construction detached SF homes w/ non-electric heat and Central New construction detached SF homes w/ non-electric heat and Central	46.3% 46.3% 21.4% 21.4%	0.0% 0.0% 0.0% 0.0%
902 903 904 905 906 907	Residential New Construction-Tier 2 Residential New Construction-Tier 1 Residential New Construction-Tier 2 Residential New Construction Tier 1	SFD SFD SFD MF	NC NC NC NC	8505 8505 11476	15.00% 30.00% 15.00%	1275.8 2551.5 1721.4	0.105 0.210 0.540	0.700 0.700 0.700	0.420 0.840 0.300	0.700 0.700 0.700	15 15 15	\$3,752.00 \$5,628.00 \$2,135.50	New construction detached SF homes w/ non-electric heat and Central New construction detached SF homes w/ non-electric heat and Central New construction MF homes with electric heat and central AC	46.3% 46.3% 21.4%	0.0% 0.0% 0.0%

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 because the kW demand impact for this measure was already on a coincident peak basis
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	J. AK DASIS.
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy	PA Baseline	
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO	PA TRM	Vermont TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	base saturation carculation
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA TRM	PPL (email)	First Energy	PA Baseline	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF Note 1	PA TRM	Note 1 *See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into hase saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	base saturation calculation
200	Lighting							TRM		TKM					
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	

	assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL.	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A7AB8535011?q=Residential+Occupancy+Sensors&dpf=0&l pq=Residential%2dbCccupancy%2DSensors&HORM=CPCA&Ippc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11v-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76120EEX5A73AB8353011?q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar01202EX5Ay71AB83530117q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
218	LED Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whree-to- bug//A702D2EI5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dpc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy//A70D2BES5A37AB85355011?q=Residential+Occupancy+Sensors&dpf=0& pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dpc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar01202EX5Ay71AB8353011q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	

leasure /	assumptions Sources - Met Ed														
ſeasure	Measure Name		ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report CT	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM PA TRM /	MID-ATL TRM	Lighting CF Report	MID-ATL TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM *See CF	PA TRM / GDS calculation	PA TRM *See CF	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	PA TRM	PA TRM	Note 1	PA TRM	Note 1	PA TRM	Lowe's	GDS Estimate	Penetration Summary	
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76/D28E55A37AB853530112q=Residential+Occupancy+Sensors&pff=0& pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whrer-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&f=ORM=CJPCA&tppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar6D28E5A37AB83535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
301	Applances Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	First Energy	PECO 2011	
313 314	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD SFD	ROB ROB		-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	First Energy First Energy	PA Baseline PA Baseline	
315	ENERGY STAR Coulds wasters with Clastical	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator EnergyStar Calculator	First Energy	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/scarch?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&cqs=a&pq=whole+house+fan&sp=&rt=Com pletions&tk=&spv=&sl=E≻=&st=*=AAAAAAAAA#x0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators

324     Energy :       325     Energy :       326     Energy :       327     Energy :       328     Energy :       329     Energy :       320     Energy :       321     Energy :       322     Energy :       331     Energy :       332     ENERG       333     ENERG       334     ENERG       335     ENERG       336     Energy :       337     Energy :       338     Energy :       339     Refriger       340     Energy :       341     Energy :       342     Energy :       343     Energy :       344     Energy :       345     Energy :       346     Energy :       347     Energy :       348     Energy :       349     Energy :       340     Energy :       341     Energy :       342     Energy :       343     Energy :       344     Energy :       345     Energy :       346     Energy :       347     Energy :       348     Energy :       349     Energy : <th>Measure Name         Star side mount freezer without door ice         Star top mount freezer with door ice         Star top mount freezer with door ice         Star top mount freezer with door ice         Star upright with manual defrost         Star upright with automatic defrost         Star dehumidifiers (35-45 pints/day)         Star dehumidifiers (35-45 pints/day)         Star dehumidifiers (35-45 pints/day)         Star Alcohes Washers- with Electric Heat         GY STAR Clothes Washers- with Electric Heat         GY STAR Clothes Washers- with Electric Mater Heating         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Electric Water Heating         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Gas Heat         GY STAR Clothes Washers- with Gas Heat         GY STAR Room Air Conditioners         Star Exhaust Fans        </th> <th>Home Type       SFA       SFA</th> <th>ROB vs. Retroff vs.NC ROB ROB ROB ROB ROB ROB ROB ROB ROB ROB</th> <th>Base Elec. Usc (kWh) - - - - - - - - - - - - - - - - - - -</th> <th>% Elec. Savings</th> <th></th> <th>Per Unit Winter Demand Savings (kW) PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM</th> <th>Winter CF PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM</th> <th>Per Unit Summer Demand Savings (kW) PA TRM PA TRM PA TRM PA TRM PA TRM</th> <th>Summer CF PA TRM PA TRM PA TRM PA TRM</th> <th>Useful Life PA TRM PA TRM PA TRM PA TRM</th> <th>MID-ATL TRM MID-ATL TRM MID-ATL TRM MID-ATL TRM</th> <th>Base Saturation First Energy, PA Baseline First Energy, PA Baseline First Energy, PA Baseline First Energy, PA Baseline</th> <th>EE Saturation PA Baseline PA Baseline PA Baseline PA Baseline</th> <th>Notes Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators</th>	Measure Name         Star side mount freezer without door ice         Star top mount freezer with door ice         Star top mount freezer with door ice         Star top mount freezer with door ice         Star upright with manual defrost         Star upright with automatic defrost         Star dehumidifiers (35-45 pints/day)         Star dehumidifiers (35-45 pints/day)         Star dehumidifiers (35-45 pints/day)         Star Alcohes Washers- with Electric Heat         GY STAR Clothes Washers- with Electric Heat         GY STAR Clothes Washers- with Electric Mater Heating         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Electric Water Heating         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Betterin Heat         GY STAR Clothes Washers- with Gas Heat         GY STAR Clothes Washers- with Gas Heat         GY STAR Room Air Conditioners         Star Exhaust Fans	Home Type       SFA       SFA	ROB vs. Retroff vs.NC ROB ROB ROB ROB ROB ROB ROB ROB ROB ROB	Base Elec. Usc (kWh) - - - - - - - - - - - - - - - - - - -	% Elec. Savings		Per Unit Winter Demand Savings (kW) PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	Winter CF PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	Per Unit Summer Demand Savings (kW) PA TRM PA TRM PA TRM PA TRM PA TRM	Summer CF PA TRM PA TRM PA TRM PA TRM	Useful Life PA TRM PA TRM PA TRM PA TRM	MID-ATL TRM MID-ATL TRM MID-ATL TRM MID-ATL TRM	Base Saturation First Energy, PA Baseline First Energy, PA Baseline First Energy, PA Baseline First Energy, PA Baseline	EE Saturation PA Baseline PA Baseline PA Baseline PA Baseline	Notes Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
No.           224         Energy :           323         Energy :           324         Energy :           325         Energy :           326         Energy :           327         Energy :           328         Energy :           329         Energy :           320         Energy :           321         Energy :           322         Energy :           323         ENERG           324         Energy :           325         ENERG           336         ENERG           337         Energy :           338         Energy :           339         Refriger           340         Energy :           341         Energy :           342         Energy :           343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           340         Energy :           341         Energy :           342	Star bottom mount freezer with door ice Star top mount freezer with door ice Star side mount freezer with door ice Star upright with manual defrost Star upright with automatic defrost Star upright with automatic defrost Star chest freezer Star dehumidifiers (35-45 pints/day) Star Electric Clothes Derev with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Gas Heat GY STAR Clothes Star Beat GY STAR Room Air Conditioners Star Exhaust Fans Star Exhaust Fans	SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB ROB ROB ROB			PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM	MID-ATL TRM MID-ATL TRM MID-ATL TRM	Baseline First Energy, PA Baseline First Energy, PA Baseline First Energy, PA	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
No         No           325         Energy :           326         Energy :           327         Energy :           328         Energy :           329         Energy :           320         Energy :           321         Energy :           322         Energy :           323         ENERG           333         ENERG           334         ENERG           335         ENERG           336         ENERG           337         Energy :           338         Energy :           339         Refriger           341         Energy :           342         Energy :           343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           340         Energy :           341         Energy :           343         Energy :           344         Energy :           345         Energy : <td< td=""><td>Star top mount freezer with door ice Star side mount freezer with door ice Star upright with manual defrost Star upright with automatic defrost Star upright with automatic defrost Star chest freezer Star dehumidifiers (35-45 pints/day) Star Electric Clothes Dreve with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Vater Heating GY STAR Clothes Washers- with Gas Heat GY STAR Clothes Star electric Water Heating GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans</td><td>SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA</td><td>ROB ROB ROB ROB ROB ROB ROB ROB ROB ROB</td><td></td><td></td><td>PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM</td><td>MID-ATL TRM MID-ATL TRM</td><td>Baseline First Energy, PA Baseline First Energy, PA</td><td>PA Baseline</td><td></td></td<>	Star top mount freezer with door ice Star side mount freezer with door ice Star upright with manual defrost Star upright with automatic defrost Star upright with automatic defrost Star chest freezer Star dehumidifiers (35-45 pints/day) Star Electric Clothes Dreve with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Vater Heating GY STAR Clothes Washers- with Gas Heat GY STAR Clothes Star electric Water Heating GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB ROB ROB ROB			PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	Baseline First Energy, PA Baseline First Energy, PA	PA Baseline	
No.           2026         Energy :           2026         Energy :           2027         Energy :           2029         Energy :           2030         Energy :           2031         Energy :           2032         Energy :           2033         ENERG           2034         ENERG           2035         ENERG           2036         ENERG           2037         Energy :           2038         Energy :           2039         Refriger           2040         Refriger           2041         Energy :           2042         Energy :           2043         Energy :           2044         Energy :           2045         Energy :           2046         Energy :           2047         Energy :           2048         Energy :           2049         Energy :           2040         Energy :           2041         Energy :           2042         Energy :           2043         Energy :           2044         Energy :           2050         Energy : <t< td=""><td>Star side mount freezer with door ice Star upright with manual defrost Star upright with automatic defrost Star dehumidifiers (35-45 pints/day) Star Electric Clothes Driver with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Electric Water Heating GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans</td><td>SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA</td><td>ROB ROB ROB ROB ROB ROB ROB ROB ROB</td><td></td><td>- - - - - - - - - - - - - - - - -</td><td>PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM PA TRM</td><td>PA TRM PA TRM</td><td>PA TRM PA TRM</td><td>PA TRM</td><td>MID-ATL TRM</td><td>Baseline First Energy, PA</td><td></td><td>Base sat. of this type of refrigerator; EE sat. of all primary refrigerators</td></t<>	Star side mount freezer with door ice Star upright with manual defrost Star upright with automatic defrost Star dehumidifiers (35-45 pints/day) Star Electric Clothes Driver with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Electric Water Heating GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB ROB ROB		- - - - - - - - - - - - - - - - -	PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM	MID-ATL TRM	Baseline First Energy, PA		Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327         Energy           328         Energy           329         Energy           330         Energy           331         Energy           332         ENERGY           333         ENERGY           334         ENERGY           335         ENERGY           336         ENERGY           337         ENERGY           338         ENERGY           339         Refriger           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           340         Energy           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy	Star upright with manual defrost Star upright with automatic defrost Star upright with automatic defrost Star chest freezer Star dehumidtfiers (35-45 pints/day) Star Electric Clothes Drev with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Heat GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB ROB ROB		-	PA TRM PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM PA TRM	PA TRM PA TRM	PA TRM	PA TRM				DLD F	
And the second	Star upright with automatic defrost Star upright with automatic defrost Star chest freezer Star dehumidifiers (35-45 pints/day) Star Electric Clothes Dryer with Mosture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Electric Water Heating GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB	-	-	PA TRM PA TRM PA TRM PA TRM PA TRM	PA TRM PA TRM	PA TRM			PA TRM		Dasenne	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
Jac           Energy         Energy           330         Energy           331         Energy           332         ENERGY           333         ENERGY           334         ENERGY           335         ENERGY           336         ENERGY           337         ENERGY           338         Energy           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           340         Energy	Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB ROB	-	-	PA TRM PA TRM PA TRM PA TRM	PA TRM		PA TRM			Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
33         Energy           331         Energy           332         ENERGY           333         ENERGY           334         ENERGY           335         ENERGY           336         ENERGY           337         ENERGY           338         ENERGY           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           340         Energy	Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB ROB	-	-	PA TRM PA TRM PA TRM		PA TRM		PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
Integration           312         Energy           332         ENERG           333         ENERG           334         ENERG           335         ENERG           336         ENERG           337         Energy           338         Energy           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           340         Energy           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           351         ENERG           352         ENERG	Star Electric Clothes Dever with Moisture Sensor GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Gas Heat GY STAR Clothes Washers- with Gas Heat GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB ROB	-	-	PA TRM PA TRM	PA TRM		PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
332     ENERK       333     ENERK       334     ENERK       335     ENERK       336     ENERK       337     ENERK       338     Energy :       339     Refriger       340     Refriger       341     Energy :       342     Energy :       343     Energy :       344     Energy :       345     Energy :       346     Energy :       347     Energy :       348     Energy :       349     Energy :       340     Energy :       341     Energy :	GY STAR Clothes Washers- with Electric Heat GY STAR Clothes Washers- with Gas Heat GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Eshaust Fans Star Eshaust Fans	SFA SFA SFA SFA SFA SFA	ROB ROB ROB ROB	-		PA TRM		PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
334         ENERG           335         ENERC           336         ENERC           337         Energy           338         Energy           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           340         Energy	GY STAR Dishwashers- with Electric Water Heating GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Eshaust Fans Star Residential Whole House Fans	SFA SFA SFA SFA	ROB ROB ROB	-	-	PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	First Energy First Energy	PECO 2011 PA Baseline	
Image: Second State         Image: Second State           333         ENERC           333         Energy:           3337         Energy:           3338         Energy:           3339         Refriger           340         Refriger           341         Energy:           342         Energy:           343         Energy:           344         Energy:           345         Energy:           346         Energy:           347         Energy:           348         Energy:           349         Energy:           340         Energy:           341         Energy:           342         Energy:           343         Energy:           344         Energy:           345         Energy:           346         Energy:           350         Energy:           351         ENERC           352         ENERC           354         ENERC	GY STAR Dishwashers- with Gas Heat GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA SFA	ROB ROB	-	-	EnergyStar	PA TRM	PA TRM	PA TRM			MID-ATL TRM EnergyStar	First Energy	PA Baseline	
336     ENERC       337     Energy       338     Energy       339     Refriger       339     Refriger       340     Refriger       341     Energy       342     Energy       343     Energy       344     Energy       345     Energy       346     Energy       347     Energy       348     Energy       349     Energy       349     Energy       341     Energy       342     Energy	GY STAR Room Air Conditioners Star Exhaust Fans Star Residential Whole House Fans	SFA SFA	ROB	-		Calculator EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator EnergyStar	First Energy	PA Baseline	
337         Energy :           338         Energy :           338         Energy :           339         Refriger           340         Refriger           341         Energy :           342         Energy :           343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           349         Energy :           341         Energy :	Star Exhaust Fans Star Residential Whole House Fans	SFA		-	-	Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator	First Energy	PA Baseline	
All         Energy           3338         Energy           339         Refriger           340         Refriger           341         Energy           342         Energy           343         Energy           344         Energy           345         Energy           346         Energy           347         Energy           348         Energy           349         Energy           341         Energy	Star Residential Whole House Fans		ROB		-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
Image           339         Refriger           340         Refriger           341         Energy 3           342         Energy 3           343         Energy 3           344         Energy 3           345         Energy 3           346         Energy 3           347         Energy 3           348         Energy 3           349         Energy 3           349         Energy 3           341         Energy 3           342         Energy 3           343         Energy 3           344         Energy 3           345         Energy 3           346         Energy 3           347         Energy 3           348         Energy 3           349         Energy 3           350         Energy 3           351         ENERGY           352         ENERGY		SFA		-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
Base           340         Refriger           341         Energy 3           342         Energy 3           343         Energy 3           344         Energy 3           345         Energy 3           346         Energy 3           347         Energy 3           348         Energy 3           349         Energy 3           349         Energy 3           351         ENERG 3           351         ENERG 352	rator / Freezer Recycling and Replacement With a New Unit		Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&rt=Com pletions&tk=&spv=&sl=E≻=&st=*=AAAAAAAAA#x0y0
B         B           341         Energy :           342         Energy :           343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           349         Energy :           349         Energy :           349         Energy :           340         Energy :           341         Energy :		MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
342         Energy :           343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         ENERGY :	rator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
343         Energy :           344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         Energy :           352         ENERG	Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344         Energy :           345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         ENERG           352         ENERG	Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345         Energy :           346         Energy :           347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         ENERGY	Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346         Energy :           347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         ENERG           352         ENERG	Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
347         Energy :           348         Energy :           349         Energy :           350         Energy :           351         ENERG           352         ENERG	Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
348         Energy :           349         Energy :           350         Energy :           351         ENERC           352         ENERC	Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
349         Energy           350         Energy           351         ENERG           352         ENERG	Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
350         Energy :           351         ENERG           352         ENERG	Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
351 ENERG 352 ENERG	Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
352 ENERG	Star Electric Clothes Dryer with Moisture Sensor GY STAR Clothes Washers- with Electric Heat	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	First Energy First Energy	PECO 2011 PA Baseline	
353 ENERC	GY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
	GY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
354 ENERG	GY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
355 ENERG	GY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
356 Energy	Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357 Energy		MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&c q=whole+house+fan&aid=&ect=&eqs=n&pq=whole+house+fan&sp=&ert=Con pletions&rk=&spv=&sl=E≻=&st=*=AAAAAAAA#x0y0
400 Electror 401 ENERC	Star Residential Whole House Fans	1	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-	First Energy	EnergyStar Market	Savings - PA TRM p.122
	Star Residential Whole House Fans	SFD		-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar Best Buy	WPP, GDS	Penetration Summary EnergyStar Market	
	Star Residential Whole House Fans nics GY STAR Computer	SFD	ROB		-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Estimate PA Baseline	Penetration Summary EnergyStar Market	
	Star Residential Whole House Fans nics GY STAR Computer GY STAR Copier	-	ROB ROB				PA TRM	PA TRM						Penetration Summary	
405 ENERG	Star Residential Whole House Fans nics GY STAR Computer	SFD				PA TRM		I PA IKM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	Savings - PA TRM p.122

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	ME, GDS Estimate	EnergyStar Market Penetration Summary	
407	>50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
408	<50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	First Energy	EnergyStar Market Penetration Summary	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy PPL PY2 Report-	WPP, GDS	EnergyStar Market	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar	Estimate ME, GDS	Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Estimate	EnergyStar Market Penetration Summary	
416	>50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
417	<50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator VERMONT	First Energy	Codes and Standards Enhancement Initiative	
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	GDS Estimate	GDS Estimate	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	First Energy	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	
423	ENERGY STAR Multifunction	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	ME, GDS Estimate	EnergyStar Market Penetration Summary	
425	>50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
426	<50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
500	Pool High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings- PA and Mid Atlantic TRMs
502	Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
504	Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VPD}$ parameters taken from Ohio TRM
600	HVAC (Envelope)										GDS				
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on $7.3%$ of homes without insulations
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
											Report				

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from First Energy); ** wall insulation = area of walls - area of windows * price per sq ft
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
609	Hoor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
612	Air Scaling (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on $7.3%$ of homes without insulations
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	229/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on $7.3%$ of homes without insulations
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	1.41/sqft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on $7.3%$ of homes without insulations
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
630	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
632	Hoor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on $7.3%$ of homes without insulations
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from First
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First
641	ENERGY STAR Windows	SFA	ROB	RemRate		RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
644	HVAC Duct Scaling (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from First Enerov)
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)

Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
656	Air Scaling (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/Sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
670	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
671	HVAC Duct Scaling (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
672	Air Scaling (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
675	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from First Energy)
680	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	

Measure	Assumptions Sources - Met Ed										1				
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	
706	Ductless Mini-Split Heat Pumps	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Stacenergy.com	First Energy	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	First Energy	PA Baseline	
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
720	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	
721	Ductless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Stacenergy.com	First Energy	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	First Energy	PA Baseline	
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Stacenergy.com	First Energy	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	First Energy	PA Baseline	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
800	Whole House Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate		TRM Opower	Opower	GDS cstimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate		Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate		Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	First Energy	GDS Estimate	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	First Energy	GDS Estimate	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	First Energy	GDS Estimate	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
900	New Construction Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
905	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

Measure	Assumptions Sources - Met Ed														
Measure	Measure Name		ROB vs. Retrofit vs. NC		% Elec. Savings	e	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

Amazon: Retail prices derived from Amazon's website Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report Best Buy: Retail prices derived from Best Buy's website Bing.com: Retail prices derived from hier hey second Bing.com: Retail prices derived from hiergen search results Codes and Standards Enhancement Initiative CT Lighting CF Report: Connecticut Lighting Coincidence Factor Report DEER database: California database of Energy Efficiency Resources EnergyStar: government-backed website that helps protect the environment through superior energy efficiency EnergyStar 2011 Savings and Costs EnergyStar Calculator: service provided by EnergyStar to help estimate savings, useful life, and cost EnergyStar Homes Report EnergyStar Penetration Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010) First Energy: First Energy Saturation Study GDS: GDS Associates Calculation/Assumption. See measure-specific notes. GDS fusionate: Relied on industry experience and professional judgement due to lack of available primary researche at the state/regional level. GDS Measure Life Report: SPWG and GDS's document of a set of measure life values for selected measures Google.com: Retail prices derived from Google Shopping Home Depot: Retail prices derived from Home Depot's website LOWES: Retail prices derived from Lowe's website. MID-ATL TRM: Mid-Atlantic Technical Reference Manual. Version 2.0 Navigant 2011: describes methods and results of ICS, commissioned by the EM&V Forum Research Subcommittee to update incremental costs for measures Opower: information used for calculating indirect feedback Ohio TRM: Ohio Technical Reference Manual PA Baseline: Pennsylvania Baseline study, conducted by GDS PA TRM: Pennsylvania Technical Reference Manual PA TRM / Ohio TRM: Pennsylvania Technical Reference Manual / Ohio Technical Reference Manual PECO 2011: data calculated from PECO's residential survey PECO email: correspondence with representative(s) at PECO PPL email: correspondence with representative(s) at PPL PPL Quarterly Report: documents progress and effectiveness of EE&C accomplishments for PPL through end of PY3, Quarter 2 FIT country hepot: ownership forgets and extracting of rates are considered as a fit of the second s Vermont TRM: Vermont Technical Reference Manual WPP: West Penn Power Saturation Survey

	Assumptions - PECO						D II .		<b>D U</b> U						
		Home Type	ROB vs.	Base		Annual	Per Unit Winter		Per Unit Summer						
Measure	Measure Name	(SFA,		Elec.	% Elec.	Elec.	Demand	Winter	Demand	Summer	Useful	Incremental	Measure/End Use Description	Base	EE
		SFD,		Use (kWh)	Savings	Savings (kWh)	Savings	CF	Savings	CF	Life	/Full Cost		Saturation	Saturation
100	Water Heating End Use	MF)		(KWII)		(KWII)	(kW)		(kW)						
	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB			133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	34.1%	10.0%
	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.012	1.000	0.012	1.000	14	\$99.31	Homes w/Electric Water Heater	34.1%	10.0%
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	34.1%	10.0%
104	Solar Water Heaters	SFD	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$4,050.00	Homes w/Electric Water Heater	34.1%	0.0%
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	34.1%	10.0%
106	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	SFD SFD	ROB Retrofit	-	-	2202.0 124.0	0.202 0.011	1.000	0.202 0.011	1.000	14 13	\$975.00 \$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	34.1% 34.1%	10.0%
	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.011	1.000	0.011	1.000	9	\$20.00	Homes w/Electric Water Heater	54.5%	78.3%
	Low Flow Faucet Aerators	SFD	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	119.3%	82.6%
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	34.1%	15.8%
	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	16.7%	10.0%
	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	16.7%	10.0%
	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	16.7%	10.0%
114	Solar Water Heaters	SFA	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$4,050.00	Homes w/Electric Water Heater	16.7%	0.0%
115	Heat Pump Water Heaters- 2.0 Energy Factor Heat Pump Water Heaters- 2.3 Energy Factor	SFA SFA	ROB ROB	-	-	1914.0 2202.0	0.175	1.000	0.175	1.000	14 14	\$925.00 \$975.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	16.7% 16.7%	10.0%
	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	124.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	16.7%	10.0%
117	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	461.0	0.042	1.000	0.011	1.000	9	\$20.00	Homes w/Electric Water Heater	26.7%	78.3%
	Low Flow Faucet Aerators	SFA	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	58.3%	82.6%
	Water Heater Tank Wrap	SFA	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	16.7%	15.8%
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	16.7%	10.0%
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	16.7%	10.0%
	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	16.7%	10.0%
124	Solar Water Heaters	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$4,050.00	Homes w/Electric Water Heater	16.7%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	16.7%	10.0%
126 127	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	MF	ROB Retrofit	-	-	2202.0 124.0	0.202	1.000	0.202	1.000	14	\$975.00 \$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	16.7% 16.7%	10.0%
	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	461.0	0.011	1.000	0.011	1.000	9	\$18.00	Homes w/Electric Water Heater	26.7%	78.3%
120	Low Flow Showenicads- 1.5 Of M Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.042	1.000	0.042	1.000	12	\$2.00	Homes w/Electric Water Heater	58.3%	82.6%
	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	16.7%	15.8%
200	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	184.1%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	38.4%	18.1%
203	LED Nightlight	SFD		-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	38.4%	18.1%
204 205	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-									100.00/	
			ROB					0.000		0.000	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	18.3%
		SFD		-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	18.3%
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	31.3 45.1		0.000		0.000	6 6	\$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0% 100.0%	18.3% 18.3%
	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based)			-	-	31.3 45.1 27.0	0.029 0.041 0.030	0.298	0.029 0.041	0.050	6	\$1.25 \$1.25 \$15.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures	100.0%	18.3%
206 207	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD SFD	ROB ROB	- - - -	-	31.3 45.1	0.029 0.041	0.298 0.298 0.050	0.029 0.041 0.030	0.050 0.050 0.050	6 6 20	\$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0% 100.0% 100.0%	18.3% 18.3% 18.3%
206 207 208	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps	SFD SFD SFD	ROB ROB ROB	- - - - -	- - - -	31.3 45.1 27.0 31.7	0.029 0.041 0.030 0.031	0.298 0.298 0.050 0.298	0.029 0.041 0.030 0.031	0.050 0.050 0.050 0.050	6 6 20 13.7	\$1.25 \$1.25 \$15.00 \$20.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps	100.0% 100.0% 100.0% 100.0%	18.3% 18.3% 18.3% 18.3%
206 207 208 209	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDsReflector Lamp	SFD SFD SFD SFD	ROB ROB ROB		- - - - - - - - - -	31.3 45.1 27.0 31.7 71.2	0.029 0.041 0.030 0.031 0.070	0.298 0.298 0.050 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070	0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20	\$1.25 \$1.25 \$15.00 \$20.00 \$30.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps	100.0% 100.0% 100.0% 100.0% 100.0%	18.3% 18.3% 18.3% 18.3% 18.3%
206 207 208 209 210 211 212	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Dutdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights	SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000	0.298 0.298 0.298 0.050 0.298 0.298 0.298 0.050 0.050 0.050	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000	6 6 20 13.7 20 20 10 10	\$1.25 \$1.25 \$15.00 \$20.00 \$30.00 \$20.00 \$20.00 \$25.00 \$20.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps Homes with oterchieres Homes with torchieres Homes with holiday lights	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3%
206 207 208 209 210 211 212 213	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROBROBROB	- - - - - - - - - - - - - -		31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000	0.298 0.298 0.050 0.298 0.298 0.298 0.298 0.050 0.050 0.050 0.000 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050	6 20 13.7 20 20 10 10 10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with ordedor lamps Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with occupancy sensors	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0% 0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5%
206 207 208 209 210 211 212 213 214	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROBROBRetrofitRetrofit	- - - - - - - - - - - - - - - - - - -		31.3           45.1           27.0           31.7           71.2           81.7           60.4           10.6           4.6           6.2	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000	0.298 0.298 0.050 0.298 0.298 0.298 0.050 0.050 0.000 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050 0.050	6 20 13.7 20 20 10 10 10 10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps Homes with outdoor fixtures Homes with torchieres Homes with hokiday lights Homes with occupancy sensors Homes with occupancy sensors	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0% 0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5%
206 207 208 209 210 211 212 213 214 215	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL. Residential Occupancy Sensors- 23 W CFL.	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB ROB ROB ROB ROB ROB ROB Retrofit Retrofit			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000	0.298 0.298 0.050 0.298 0.298 0.298 0.050 0.050 0.000 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050 0.050 0.050	6 20 13.7 20 20 10 10 10 10 10 10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$20.00 \$18.00 \$18.00 \$18.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with torcupancy sensors Homes with occupancy sensors Homes with occupancy sensors	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0% 0.0% 0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.7% 17.5%
206 207 208 209 210 211 212 213 214 215 216	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors - 14 W CFL Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROBROBRetrofitRetrofitRetrofitROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6 134.0	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 20 20	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$86.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with ordelor fixtures Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with cocupancy sensors	100.0% 100.0% 100.0% 100.0% 100.0% 50.0% 100.0% 60.0% 0.0% 0.0% 110.5%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL. Residential Occupancy Sensors- 23 W CFL.	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       ROB       ROB       ROB       ROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6 134.0 26.0	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.119 0.000	0.298 0.298 0.050 0.298 0.298 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.119 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 20 8	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$20.00 \$18.00 \$18.00 \$18.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps Homes with outdoor fixtures Homes with torchieres Homes with toccupancy sensors Homes with occupancy sensors Homes with adjultghts	100.0% 100.0% 100.0% 100.0% 355.0% 100.0% 60.0% 0.0% 0.0% 100.5% 38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1%
206 207 208 209 210 211 212 213 214 215 216 217	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Touchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors-14 W CFL. Residential Occupancy Sensors-23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROBROBRetrofitRetrofitRetrofitROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6 134.0	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 20 8 8 8	\$1.25 \$1.25 \$1.500 \$20.00 \$20.00 \$20.00 \$20.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with general service lamps Homes with orelector lamps Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with toccupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with ceiling fans that have light fixtures Homes with neiling fans that have light fixtures Homes with neiling fans that have light fixtures Homes with neiling fans that have light fixtures Homes with nightlights	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0% 0.0% 0.0% 100.0% 110.5% 38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217 218	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR A Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors- 19 W CFL Residential Occupancy Sensors- 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROBROBROBROBROBROBRetrofitRetrofitROBROBROBROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 4.6 6.2 7.6 134.0 26.0 22.0	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.119 0.000 0.000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.119 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 20 8	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$86.00 \$2.20	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with general service lamps Homes with reflector lamps Homes with outdoor fixtures Homes with torchieres Homes with toccupancy sensors Homes with occupancy sensors Homes with adjultghts	100.0% 100.0% 100.0% 100.0% 355.0% 100.0% 60.0% 0.0% 0.0% 100.5% 38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1%
206 207 208 209 210 211 212 213 214 215 216 217 218 219	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILDDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Couldoor Fixture (hard wired, pin-based) ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB       ROB       ROB       ROB       ROB       ROB       ROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6 134.0 26.0 22.0 26.7 31.3 45.1	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.119 0.000 0.000 0.000 0.000 0.000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.119 0.000 0.000 0.119 0.000 0.000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.000 0.000	$\begin{array}{c} 6 \\ 20 \\ 13.7 \\ 20 \\ 20 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 20 \\ 8 \\ 8 \\ 6 \\ \end{array}$	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with orelactor lamps Homes with outdoor fixtures Homes with otorbieres Homes with occupancy sensors Homes with cocupancy sensors Homes with cocupancy sensors Homes with cightinghts Homes with nightlights Homes with nightlights Homes with 60 Watt incandescent bulbs	100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 60.0% 0.0% 0.0% 110.5% 38.4% 38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5% 17.5% 17.5% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 14 W CFL. Residential Occupancy Sensors 19 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       ROB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\end{array}$	0.029 0.041 0.030 0.031 0.071 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0119 0.000 0.000 0.024	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298	0.029 0.041 0.030 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.024	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 10 20 8 8 8 6 6 6	\$1.25 \$1.25 \$1.25 \$1.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.00 \$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with orcloiers Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with noghtlights Homes with nightlights Homes with nightlights Homes with 3 Watt incandescent bulbs Homes with 75 Watt incandescent bulbs	100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 60.0% 0.0% 0.0% 0.0% 110.5% 38.4% 38.4% 100.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1%
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL. Residential Occupancy Sensors- 18 W CFL Residential Occupancy Sensors- 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightight LED Nightight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENIERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENIERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENIERGY STAR Indoor Fixture (hard-wired, pin-based) ENIERGY STAR LEDs - General Service Lamps	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA SFA SFA SFA SFA	ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 10.6 6.2 7.6 134.0 26.0 26.0 26.0 26.0 26.7 31.3 45.1 31.3	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.119 0.000 0.119 0.000 0.024 0.022 0.024	0.298 0.2988 0.2988 0.2988 0.2988 0.2988 0.2988 0.2988 0.2988 0	0.029 0.041 0.031 0.070 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0119 0.000 0.024 0.024 0.029 0.041	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 20 8 8 8 6 6 6 6 20 13.7 10 10 10 10 10 10 10 10 10 10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$2.000	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with orcloir lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with inghlights Homes with nightlights Homes with 1 nightlights Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with modor fixtures Homes with general service lamps	100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 60.0% 0.0% 0.0% 0.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 35.8% 35.8% 35.8% 35.8% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Orduloor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA SFA SFA SFA SFA SFA	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB			31.3 45.1 27.0 31.7 71.2 81.7 60.4 4.6 6.2 7.6 4.6 6.2 7.6 134.0 26.0 26.0 26.0 26.7 31.3 45.1 27.0 7.1.2	0.029 0.041 0.030 0.031 0.057 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.024 0.022 0.024 0.030 0.030 0.030	0.298 0	0.029 0.041 0.030 0.031 0.070 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.024 0.024 0.024 0.030 0.030 0.031 0.030 0.030 0.030 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.031 0.030 0.030 0.030 0.030 0.030 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000	0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.000 0.050 0.050 0.050 0.050 0.050 0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 10 20 8 8 6 6 6 20 13.7 20 20 20 20 20 20 20 20 20 20	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$1.00 \$20.00	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with outdoor fixtures Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with of Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with alover fixtures Homes with nelocor fixtures Homes with relector lamps	100.0% 100.0% 100.0% 100.0% 100.0% 350.0% 0.0% 0.0% 0.0% 0.0% 100.0% 38.4% 38.4% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5%
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 222 223 224 225	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL. Residential Occupancy Sensors- 23 W CFL. Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 14 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 14 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 70 Watt Incan. To a 23 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 24 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL. ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Dutdoor Fixture (hard wired, pin-based)	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA SFA SFA SFA SFA SFA SFA	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       ROB			31.3 45.1 27.0 31.7 71.2 81.7 10.6 4.6 6.2 7.6 134.0 26.0 26.7 31.3 45.1 27.0 31.7 71.2 81.7	0.029 0.041 0.030 0.051 0.070 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029	0.298 0.	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029	0.050 0.	6 6 20 13.7 20 20 10 10 10 10 10 10 10 20 8 8 6 6 20 13.7 20 20 20 20 20 20 20 20 20 20	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$12.20 \$1.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$1.20 \$1.20 \$1.00 \$2.000 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with cocupancy sensors Homes with cocupancy sensors Homes with cocupancy sensors Homes with colling fans that have light fixtures Homes with nightlights Homes with nightlights Homes with fo Watt incandescent bulbs Homes with 60 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with indoor fixtures Homes with general service lamps Homes with outdoor fixtures	100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 60.0% 0.0% 0.0% 0.0% 100.5% 38.4% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 135.8% 15.8% 15.8%
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Orthoireres ENERGY STAR Orthoireres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightight LED Nightight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamp ENERGY STAR CHADS - General Service Lamp ENERGY STAR CHADS - General Service Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR CHADS - General Service Lamp ENERGY STAR LEDS - General Service Lamp ENERGY STAR CHADS - General Service Lamp	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB         ROB         ROB         ROB         ROB         ROB         RCB         RCB         RCB         RCB         ROB			31.3 45.1 27.0 31.7 71.2 81.7 71.2 81.7 60.4 10.6 4.6 6.2 7.6 7.6 7.6 134.0 26.0 26.7 31.3 45.1 27.0 31.7 71.2 81.7 81.7 81.7 81.7 81.7 81.7 81.7 81.7	0.029 0.041 0.030 0.031 0.070 0.057 0.066 0.0000 0.0000 0.0000 0.000000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.200 0.000 0.298 0.298 0.298 0.209 0.298 0.000 0.000 0.000 0.298 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000000	0.029 0.041 0.030 0.031 0.070 0.005 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.031 0.031 0.031	0.050 0.050	6 6 20 13.7 20 20 10 10 10 10 10 20 20 8 8 6 6 6 6 6 20 13.7 20 20 10 10 10 10 10 10 10 10 10 1	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$12.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$20.00 \$25.00	Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with 00 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with forkutes Homes with nightlights Homes with nightlights Homes with nightlights Homes with forkut incandescent bulbs Homes with nightlights Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with occupancy sensors Homes with nightlights Homes with occupancy sensors Homes with occupancy sensors Homes with enfector lamps Homes with torkers Homes Withorkers Homes With torkers Homes With torkers Homes Withork	100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 60.0% 0.0% 0.0% 0.0% 10	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 16.7% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 13.5% 13.5% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217 218 210 220 221 222 223 224 225 226 227	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Orthoirers ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors - 14 W CFL Residential Occupancy Sensors - 14 W CFL Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.0\\ 22.0\\ 26.0\\ 22.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 81.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ \end{array}$	0.029 0.041 0.030 0.057 0.056 0.000 0.0570	0.298 0.050 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.029 0.041 0.030 0.031 0.070 0.066 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000	0.050 0.0500	6         6           20         13.7           20         10           10         10           10         10           10         6           6         6           6         6           20         13.7           20         10           10         10           20         20           10         10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$12.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with outdoor strutes Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with nightlights Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with negneral service lamps Homes with reflector lamps Homes with torchieres Homes with horchieres Homes with horchieres	100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 350.0% 100.0% 0.0% 0.0% 0.0% 110.5% 38.4% 38.4% 38.4% 100.0% 1000	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 13.8% 18.1% 18.1% 18.1% 18.1% 18.1% 18.3% 13.8% 18.3% 18.3% 13.8% 13.5% 13
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 222 223 222 223 222 223 222 223 222 223 224 225 226	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Dutdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR CHENERGY STAR Light Fixture Electroluminescent Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 00 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 00 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 00 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 00 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 00 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 24 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR A Dutdoor Fixture (hard wired, pin-based) ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL.	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       RoB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\end{array}$	0.029 0.041 0.030 0.051 0.070 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0029 0.041 0.029 0.041 0.029	0.298 0.050 0.000 0.000 0.298 0.298 0.050 0.0000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.002 0.029 0.041 0.029	0.050 0.050	6         6           20         13.7           20         20           10         10           10         10           10         20           8         8           6         6           6         6           20         13.7           20         20           10         10           10.0         10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$	Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with enflector lamps Homes with orchieres Homes with orchieres Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with cocupancy sensors Homes with collay lights Homes with collapting that have light fixtures Homes with alghlights Homes with for Watt incandescent bulbs Homes with for Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with indoor fixtures Homes with orchieres Homes with orchieres Homes with othorier lamps Homes with othorier lamps Homes with othoriers Homes Homes With othoriers Homes With othoriers Homes With othorie	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           00.0%           00.0%           00.0%           00.0%           00.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 35.8% 35.8% 35.8% 35.8% 35.8% 35.8% 35.8% 35.8% 35.8%
206 207 208 209 210 211 212 213 214 215 216 217 218 210 221 220 221 222 223 224 225 226 227	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Ortchieres ENERGY STAR Ortchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightight LED Nightight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR TAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR TAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR TORCHIERS Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors 14 W CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 134.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 6.2\\ \end{array}$	0.029 0.041 0.030 0.031 0.070 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.031 0.057 0.057 0.057 0.057 0.057	0.298 0.050 0.000 0.000 0.000 0.0298 0.298 0	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.031 0.031 0.031 0.031 0.031 0.031	0.050 0.050	6           6           20           13.7           20           20           10           10           10           20           20           20           20           20           20           30           8           6           6           6           6           6           6           20           20           20           20           10.7           20	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.00 \$12.5 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$2	Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with rellector lamps Homes with rellector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with nightlights Homes with no Watt incandescent bulbs Homes with notor fixtures Homes with notor fixtures Homes with notor fixtures Homes with torchieres Homes with hockap lights Homes with occupancy sensors Homes with occupancy sensors	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           0.0%           0.0%           100.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.0%           0.0%           0.0%           0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 17.5% 18
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Ortdoor Fixture (hard wired, pin-based) ENERGY STAR Tortheirers ENERGY STAR Tortheirers ENERGY STAR Holiday Lights Residential Occupancy Sensors - 14 W CFL. Residential Occupancy Sensors - 10 W CFL. Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL. ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR LEDs - Reflector Lamp ENERGY STAR TAR Didday Lights Residential Occupancy Sensors - 14 W CFL. Residential Occupancy Sensors - 23 W CFL.	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       RoB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\end{array}$	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.024 0.024 0.022 0.041 0.030 0.024 0.024 0.024 0.024 0.031 0.057 0.057 0.057 0.057	0.298 0.050 0.000 0.000 0.298 0.298 0.050 0.0000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.002 0.029 0.041 0.029	0.050 0.050	6         6           20         13.7           20         20           10         10           10         10           10         8           6         6           20         20           10         10           10         10           20         20           13.7         20           20         20           10         10           10         10           10         10           10         10	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$20	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with outdoor fixtures Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with 100 Watt incandescent bulbs Homes with 00 Watt incandescent bulbs Homes with 75 Watt incandescent bulbs Homes with reflector lamps Homes with holiday lights Homes with holiday lights Homes with holiday lights Homes with holiday lights Homes with hoccupancy sensors Homes with hoccupancy sensors Homes with occupancy sensors Homes with hoccupancy sensors Homes with occupancy sensors Homes with occupancy sensors	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           350.0%           100.0%           0.0%           0.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           00.0%           0.00%           0.00%           0.00%           0.00%           0.0%           0.0%           0.0%           0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 15.8% 15.8% 15.8% 16.7% 17.5%
206 207 208 209 210 211 212 213 214 215 216 214 215 214 217 218 217 218 217 222 223 224 225 224 225 226 227 228 229 230	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR ILEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Ortchieres ENERGY STAR Ortchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightight LED Nightight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR TAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR TAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR TORCHIERS Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors 14 W CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB       ROB <t< td=""><td></td><td></td><td><math display="block">\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 80.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.3\\ 45.1\\ 27.0\\ 31.3\\ 45.1\\ 27.0\\ 10.6\\ 4.6\\ 6.2\\ 7.6\end{array}</math></td><td>0.029 0.041 0.030 0.031 0.070 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.031 0.057 0.057 0.057 0.057 0.057</td><td>0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.000 0.000 0.298 0.298 0.000 0.000 0.000 0.298 0.000 0.0298 0.0298 0.000 0.000 0.0298 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0298 0.0298 0.0000 0.000 0.000 0.000 0.0298 0.0298 0.0000 0.000 0.000 0.0298 0.0298 0.0000 0.0000 0.0000 0.0298 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000000</td><td>0.029 0.041 0.030 0.031 0.070 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.024 0.000 0.024 0.024 0.033 0.070 0.033 0.070 0.057 0.057 0.057</td><td>0.050 0.050</td><td>6           6           20           13.7           20           20           10           10           10           20           20           20           20           20           20           30           8           6           6           6           6           6           6           20           20           20           20           10.7           20</td><td>\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.00 \$12.5 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$2</td><td>Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with rellector lamps Homes with rellector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with nightlights Homes with no Watt incandescent bulbs Homes with notor fixtures Homes with notor fixtures Homes with notor fixtures Homes with torchieres Homes with hockap lights Homes with occupancy sensors Homes with occupancy sensors</td><td>100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           0.0%           0.0%           100.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.0%           0.0%           0.0%           0.0%</td><td>18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 17.5% 18</td></t<>			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 80.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.3\\ 45.1\\ 27.0\\ 31.3\\ 45.1\\ 27.0\\ 10.6\\ 4.6\\ 6.2\\ 7.6\end{array}$	0.029 0.041 0.030 0.031 0.070 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.031 0.057 0.057 0.057 0.057 0.057	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.050 0.000 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.000 0.000 0.298 0.298 0.000 0.000 0.000 0.298 0.000 0.0298 0.0298 0.000 0.000 0.0298 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0298 0.0298 0.0000 0.000 0.000 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Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with nightlights Homes with nightlights Homes with no Watt incandescent bulbs Homes with notor fixtures Homes with notor fixtures Homes with notor fixtures Homes with torchieres Homes with hockap lights Homes with occupancy sensors Homes with occupancy sensors	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           0.0%           0.0%           100.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.0%           0.0%           0.0%           0.0%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 17.5% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.3% 18.3% 17.5% 18.3% 18.3% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 17.5% 18
206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 222 223 222 224 225 226 227 228 229 230 231	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Dutdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 24 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDS - Senfector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR CHL Bulbs Residential Occupancy Sensors 14 W CFL Residential Occupancy Sensors 14 W CFL	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA SFA SFA SFA SFA SFA SFA SFA SFA	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       ROB        ROB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 6.2\\ 7.6\\ 6.2\\ 7.6\\ 134.0\\ \end{array}$	0.029 0.041 0.030 0.051 0.070 0.005 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.030 0.000 0.000 0.000 0.029	0.298 0.298	0.029 0.041 0.030 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.002 0.029 0.041 0.029 0.041 0.033 0.033 0.057 0.066 0.000 0.057 0.057 0.066 0.000 0.057 0.057	0.050 0.0500	6           6           20           13.7           20           20           10           10           10           20           8           6           6           6           6           6           6           13.7           20           20           10           10           10           10           10           10           10           10           10           20	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$22.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$1.20 \$1.20 \$1.20 \$1.20 \$1.20 \$1.20 \$1.25 \$1.20 \$20.00 \$20.00 \$20.00 \$20.00 \$20.00 \$20.00 \$25.00 \$20.00 \$25.000 \$26.000 \$26.000 \$25.000 \$26.0000 \$26.000 \$26.0000 \$26.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$20.0000\$200	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with color fixtures Homes with adjutights Homes with for Watt incandescent bulbs Homes with foor fixtures Homes with indoor fixtures Homes with indoor fixtures Homes with adjutights Homes with adjutights Homes with adjutights Homes with othor fixtures Homes with othor fixtures Homes with othordiar jugits Homes with othordiary sensors Homes with occupancy sensors Homes with adjutights Homes with occupancy sensors Homes with adjutights Homes with occupancy sensors Homes with cocupancy sensors	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           00.0%           00.0%           00.0%           00.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.3% 17.5% 17.5% 18.38% 18.38% 18.38% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.38% 18.38% 18.38% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.38% 18.38% 18.38% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.38% 18.38% 18.38% 18.38% 18.38% 18.38% 18.38% 18.1% 18.38% 18.1% 18.38% 18.1% 18.38% 18.1% 18.38% 18.1% 18.5% 18.1% 18.1% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 18.8% 17.5% 17.
206 207 208 209 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 220 223 224 225 226 227 228 229 230 231 232	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR Orthoireres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Torchieres ENERGY STAR Holiday Lights Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR TAR Torchieres ENERGY STAR TAR Torchieres ENERGY STAR TAR Torchieres ENERGY STAR TAR Torchieres ENERGY STAR TAR TORCHIER Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors- 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB       ROB <t< td=""><td></td><td></td><td><math display="block">\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 134.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 10.6\\ 10.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 2</math></td><td>0.029 0.041 0.030 0.031 0.070 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.031 0.070 0.029</td><td>0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.050 0.000 0.298 0.</td><td>0.029 0.041 0.030 0.031 0.070 0.005 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.029</td><td>0.050 0.050</td><td>6           6           20           13.7           20           20           10           10           10           20           20           20           20           20           20           20           30           8           6           6           6           6           20           20           20           20           20           20           20           10.7           10           10           10           20           8</td><td>\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.0</td><td>Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with of Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with notor fixtures Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with occupancy sensors Homes with nightlights</td><td>100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.0%           0.0%           0.0%           0.0%           0.0%           50.0%           38.4%</td><td>18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.5% 18.1% 18.5% 17.5% 18.5% 18.5% 18.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 18.5% 17.5% 17.5% 17.5% 18.7% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 18.1% 18.5% 17.5% 18.1% 18.5% 18</td></t<>			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 134.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 71.2\\ 81.7\\ 10.6\\ 10.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 2$	0.029 0.041 0.030 0.031 0.070 0.065 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.031 0.070 0.029	0.298 0.298 0.298 0.298 0.298 0.298 0.050 0.050 0.000 0.298 0.	0.029 0.041 0.030 0.031 0.070 0.005 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.029 0.041 0.029	0.050 0.050	6           6           20           13.7           20           20           10           10           10           20           20           20           20           20           20           20           30           8           6           6           6           6           20           20           20           20           20           20           20           10.7           10           10           10           20           8	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$25.00 \$18.00 \$18.00 \$18.00 \$18.00 \$2.20 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.0	Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with reflector lamps Homes with reflector lamps Homes with outdoor fixtures Homes with outdoor fixtures Homes with occupancy sensors Homes with nightlights Homes with nightlights Homes with of Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 40 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs Homes with indoor fixtures Homes with notor fixtures Homes with outdoor fixtures Homes with torchieres Homes with torchieres Homes with occupancy sensors Homes with nightlights	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           00.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.0%           0.0%           0.0%           0.0%           0.0%           50.0%           38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 18.1% 18.1% 18.1% 18.1% 18.1% 18.1% 18.5% 18.1% 18.5% 17.5% 18.5% 18.5% 18.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 17.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 18.5% 17.5% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 18.5% 17.5% 17.5% 17.5% 18.7% 18.5% 18.5% 18.5% 18.5% 18.5% 18.5% 17.5% 17.5% 18.5% 18.5% 18.5% 17.5% 18.1% 18.5% 17.5% 18.1% 18.5% 18
206 207 208 209 210 211 212 213 214 215 216 217 218 217 218 217 218 217 221 222 223 224 225 226 227 228 229 230 231 231 233	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - General Service Lamps ENERGY STAR Ortdivers ENERGY STAR Ortdivers ENERGY STAR Tortheirers ENERGY STAR Holiday Lights Residential Occupancy Sensors - 14 W CFL Residential Occupancy Sensors - 12 W CFL Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp ENERGY STAR LEDs - Reflector Lamp ENERGY STAR LEDS - Reflector Lamp ENERGY STAR LEDS - Sensors 14 W CFL Residential Occupancy Sensors - 14 W CFL Residential Occupancy Sensors - 19 W CFL Residential Occupancy Sensors - 19 W CFL Residential Occupancy Sensors - 23 W CFL Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight LED Nightlight	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	ROB       ROB       ROB       ROB       ROB       ROB       ROB       Retrofit       Retrofit       Retrofit       ROB			$\begin{array}{c} 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 26.7\\ 31.3\\ 45.1\\ 27.0\\ 31.7\\ 71.2\\ 81.7\\ 60.4\\ 10.6\\ 4.6\\ 6.2\\ 7.6\\ 134.0\\ 26.0\\ 22.0\\ 22.0\\ \end{array}$	0.029 0.041 0.030 0.031 0.057 0.066 0.000 0.000 0.000 0.000 0.000 0.024 0.024 0.024 0.024 0.024 0.024 0.030 0.0357 0.057 0.057 0.056 0.0000 0.00000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.000000	0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.000 0.298 0.298 0.298 0.000 0.298 0.298 0.298 0.000 0.298 0.000 0.000 0.298 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.029 0.041 0.030 0.031 0.070 0.066 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.029 0.041 0.030 0.000 0.035 0.035 0.057 0.065 0.000 0.000 0.000 0.000 0.000 0.000	0.050 0.0500	6           6           20           13.7           20           20           10           10           10           20           8           6           6           20           10           10           20           20           10           10.20           8           6           6           20           10           10           10           10           10           10           10           10           10           10           10           10           10           10           20           8           8	\$1.25 \$1.25 \$15.00 \$20.00 \$20.00 \$20.00 \$20.00 \$18.00 \$18.00 \$18.00 \$18.00 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.25 \$1.20 \$20.00 \$20.00 \$20.00 \$18.00 \$20.00 \$20.00 \$20.00 \$20.00 \$18.00 \$20.0	Homes with 75 Watt incandescent bulbs Homes with indoor fixtures Homes with indoor fixtures Homes with eneral service lamps Homes with outdoor fixtures Homes with orchieres Homes with occupancy sensors Homes with occupancy sensors Homes with occupancy sensors Homes with collay lights Homes with collay lights Homes with collay lights Homes with angletights Homes with how the sensors Homes with how the sensors Homes with angletights Homes with angletights Homes with how the sensors Homes with occupancy sensors Homes with celling fans that have light fixtures Homes with cocupancy sensors Homes with celling fans that have light fixtures Homes with angletights Homes homes with angletights Homes homes homes homes homes homes with angletights Homes with angletights Homes homes homes homes homes homes hom	100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.0%           0.0%           0.0%           0.0%           0.0%           0.0%           0.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           100.0%           0.00%           0.00%           0.00%           0.00%           0.00%           0.00%           0.0%           0.0%           0.0%           0.0%           0.0%           0.0%           0.0%           38.4%           38.4%	18.3% 18.3% 18.3% 18.3% 18.3% 18.3% 17.5% 17.5% 17.5% 17.5% 18.1% 18.1% 35.8% 35.8% 35.8% 35.8% 16.7% 17.5% 16.7% 17.5% 16.7% 17.5% 18.1%

Measure	Assumptions - PECO				_				_						
		Home	DOD	Base		Annual	Per Unit		Per Unit Summer						
Measure	Measure Name	Type (SFA,	ROB vs. Retrofit	Elec.	% Elec.	Elec.	Winter Demand	Winter	Demand	Summer	Useful	Incremental	Measure/End Use Description	Base	EE
measure	incasure i vanic	SFD,	vs. NC	Use (kWh)	Savings	Savings	Savings	CF	Savings	CF	Life	/Full Cost	incastic/ End Osc Description	Saturation	Saturation
237	PNERCV CTAR I. L. F A. L. '. L.'. L R	MF)	ROB	(KWN)		(kWh) 27.0	(kW)	0.050	(kW) 0.030	0.050	20	\$15.00		100.0%	28.0%
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7	0.030	0.050	0.030	0.050	13.7	\$15.00 \$20.00	Homes with indoor fixtures Homes with general service lamps	100.0%	28.0%
230	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	28.0%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	_	81.7	0.057	0.050	0.070	0.050	20	\$20.00	Homes with reflector famps Homes with outdoor fixtures	100.0%	28.0%
241	ENERGY STAR Torchieres	MF	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	28.0%
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit			7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
300	Appliances	CED	DOD			1005.0	0.044	0.600	0.044	0.(00)	-	6120.00		10.0%/	04.00/
301 302	Refrigerator / Freezer Recycling and Replacement With a New Unit Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD SFD	ROB ROB	-	-	1205.0 1659.0	0.241	0.620	0.241	0.620	8	\$120.00 \$120.00	Homes with secondary refrigerators	40.9% 40.9%	24.0% 24.0%
302	Energy Star top mount freezer without door ice	SFD	ROB	-	-	1059.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with secondary refrigerators Homes with top mount freezers without door ice	31.8%	24.0%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	4.6%	24.0%
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	_	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	22.7%	24.0%
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	24.0%
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	36.4%	24.0%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	20.5%	0.0%
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	11.4%	0.0%
310	Energy Star chest freezer	SFD	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	15.9%	0.0%
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	50.0%	20.0%
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	68.2%	95.1% 22.2%
313	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD SFD	ROB	-	-	224.0 24.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat	31.8% 50.0%	22.2%
314	ENERGY STAR Clothes washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	29.6%	46.7%
315	ENERGY STAR Dishwashers- with Electric water freating	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	47.3%	34.5%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	_	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	27.3%	8.0%
318	Energy Star Exhaust Fans	SFD	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	36.4%	0.0%
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	16.7%	24.0%
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	16.7%	24.0%
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	58.3%	24.0%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	4.2%	24.0%
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	8.3%	24.0%
325 326	Energy Star top mount freezer with door ice Energy Star side mount freezer with door ice	SFA SFA	ROB ROB	-	-	124.0 133.0	0.013	1.000	0.013	1.000	13 13	\$95.00 \$95.00	Homes with top mount freezers with door ice Homes with side mount freezers with door ice	4.2% 25.0%	24.0% 24.0%
320	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice Homes with upright, manual defrost freezers	4.2%	0.0%
327	Energy Star upright with automatic defrost	SFA	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	4.2%	0.0%
329	Energy Star chest freezer	SFA	ROB	-	_	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	0.0%	0.0%
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	12.5%	20.0%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	45.8%	95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	16.7%	22.2%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	54.2%	17.1%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	8.3%	46.7%
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	33.3%	34.5%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	79.2%	8.0%
337 338	Energy Star Exhaust Fans	SFA	ROB	-	-	2.0 229.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	4.2%	10.0%
338	Energy Star Residential Whole House Fans Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA MF	Retrofit ROB	-	-	1205.0	0.000	0.620	0.000	0.620	15	\$348.00 \$120.00	Homes with residential whole house fans	4.2%	24.0%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8		Homes with secondary refrigerators Homes with secondary refrigerators	16.7%	24.0%
340	Energy Star top mount freezer without door ice	MF	ROB		-	1055.0	0.013	1.000	0.013	1.000	13		Homes with top mount freezers without door ice	58.3%	24.0%
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13		Homes with side mount freezers without door ice	4.2%	24.0%
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	8.3%	24.0%
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	4.2%	24.0%
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	25.0%	24.0%
346	Energy Star upright with manual defrost	MF	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	4.2%	0.0%
347	Energy Star upright with automatic defrost	MF	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	4.2%	0.0%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	0.0%	0.0%
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	12.5%	20.0%
350 351	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB ROB	-	-	136.0 224.0	0.346 0.015	0.136	0.346 0.015	0.136	11 10	\$270.00 \$250.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	45.8% 16.7%	95.1% 22.2%
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat Homes with clothes washer and gas heat	54.2%	17.1%
352	ENERGY STAR Clothes washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	54.2% 8.3%	46.7%
354	ENERGY STAR Dishwashers- with Electric water freating	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	33.3%	34.5%
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	MF homes with room AC	79.2%	8.0%
356	Energy Star Exhaust Fans	MF	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
357	Energy Star Residential Whole House Fans	MF	Retrofit	_		229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	4.2%	0.0%

Measure	Assumptions - PECO														
		Home		Base		Annual	Per Unit		Per Unit						
26	N N	Туре	ROB vs.	Elec.	% Elec.	Elec.	Winter	Winter	Summer	Summer	Useful	Incremental		Base	EE
Measure	Measure Name	(SFA, SFD,	Retrofit vs. NC	Use	Savings	Savings	Demand Savings	CF	Demand Savings	CF	Life	/Full Cost	Measure/End Use Description	Saturation	Saturation
		MF)	vs. 140	(kWh)		(kWh)	(kW)		(kW)						
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	204.6%	49.0%
402	ENERGY STAR Copier	SFD	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	10.0%	82.7%
403	ENERGY STAR Fax Machine ENERGY STAR Monitor	SFD SFD	ROB ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00 \$20.00	Homes with a fax machine	10.0%	6.0% 72.3%
404 405	ENERGY STAR Multifunction	SFD	ROB	-	-	78.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer Homes with a multifunction printer	40.0%	63.3%
405	ENERGY STAR Printer	SFD	ROB		-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a manufanction plinter Homes with a printer	40.0%	69.7%
407	>50 in	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	87.5%	24.1%
408	<50 in	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	262.5%	24.1%
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with powerstrips	100.0%	5.0%
410	ENERGY STAR Computer	SFA	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	170.8%	49.0%
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	10.0%	82.7%
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	10.0%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5		Homes with a desktop computer	80.0%	72.3%
414	ENERGY STAR Multifunction	SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	40.0%	63.3%
415 416	ENERGY STAR Printer >50 in	SFA SFA	ROB ROB	-	-	26.0 481.0	0.004 0.074	1.000 0.280	0.004	1.000 0.280	5	\$1.00 \$1.00	Homes with a printer Homes with a television	40.0% 64.5%	69.7% 24.1%
416	<50 in	SFA	ROB			481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television Homes with a television	04.5% 193.5%	24.1%
417	Smart Strip Plug Outlets	SFA	Retrofit			124.0	0.203	0.200	0.0203	0.200	5	\$15.00	Homes with powerstrips	193.3%	5.0%
419	ENERGY STAR Computer	MF	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	170.8%	49.0%
420	ENERGY STAR Copier	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	10.0%	82.7%
421	ENERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	10.0%	6.0%
422	ENERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	80.0%	72.3%
423	ENERGY STAR Multifunction	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	40.0%	63.3%
424	ENERGY STAR Printer	MF	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	40.0%	69.7%
425	>50 in	MF	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	64.5%	24.1%
426 427	<50 in	MF	ROB Retrofit	-	-	136.0 124.0	0.263	0.280	0.263	0.280	15 5	\$1.00 \$15.00	Homes with a television Homes with powerstrips	193.5% 100.0%	24.1% 5.0%
427 500	Smart Strip Plug Outlets	MF	Retront	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with powerstrips	100.0%	5.0%
501	High Efficiency Two-Speed Pool Pump	SFD	ROB			530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool pump	6.8%	10.0%
502	Variable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool pump	6.8%	10.0%
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool pump	2.1%	10.0%
504	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool pump	2.1%	10.0%
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool pump	2.1%	10.0%
506	Variable Speed Pool Pumps	MF	ROB	-		918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool pump	2.1%	10.0%
600	HVAC (Envelope)														
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	16926	10.65%	1803.0	0.000	0.700	0.200	0.700	15	\$766.50	Detached SF existing homes with electric heat and Central AC	11.4%	20.0%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	20909	19.05%	3983.0	2.400	0.700	0.600	0.700	25	\$1,689.05	Detached SF existing homes with electric heat and Central AC	11.4%	88.5%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	20909	25.36%	5303.0	3.200	0.700	0.900	0.700	25	\$1,089.03	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with electric heat and Central AC	11.4%	88.5%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	20909	28.23%	5902.0	4.500	0.700	1.100	0.700	25	\$2,903.34	Detached SF existing homes with electric heat and Central AC	11.4%	88.5%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	16926	11.34%	1919.0	2.100	0.700	0.500	0.700	25	\$2,245.98	Detached SF existing homes with electric heat and Central AC	11.4%	45.5%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	24366	30.53%	7440.0	4.400	0.700	0.400	0.700	25	\$2,670.30	Detached SF existing homes with electric heat and Central AC	11.4%	72.0%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	24366	33.71%	8214.0	4.800	0.700	0.500	0.700	25	\$3,386.25	Detached SF existing homes with electric heat and Central AC	11.4%	72.0%
007				24500							25		Detached ST existing folines with electric flear and central free		
608	ENERGY STAR Windows	SFD	ROB	16926	4.02%	681.0	0.400	0.700	0.100	0.700	20	\$396.50	Detached SF existing homes with electric heat and Central AC	11.4%	11.2%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	16926	2.83%	479.0	-0.100	0.700	0.000	0.700	25	\$1,259.94	Detached SF existing homes with electric heat and Central AC	10.3%	19.0%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	16926	3.25%	550.0	-0.100	0.700	0.000	0.700	25	\$1,597.75	Detached SF existing homes with electric heat and Central AC	10.3%	19.0%
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	16926	6.36%	1076.0	2.200	0.700	0.300	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	11.4%	25.0%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	3034	1.52%	46.0	0.000	0.700	0.200	0.700	15	\$766.50	Detached SF existing homes with non-electric heat and Central AC	68.2%	20.0%
													-		_0.07.5
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	3725	18.55%	691.0	0.000	0.700	0.600	0.700	25	\$1,689.05	Detached SF existing homes with non-electric heat and Central AC	68.2%	88.5%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	3725	23.41%	872.0	0.000	0.700	0.800	0.700	25	\$2,245.98	Detached SF existing homes with non-electric heat and Central AC	68.2%	88.5%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	3725	24.24%	903.0	0.000	0.700	0.900	0.700	25	\$2,903.34	Detached SF existing homes with non-electric heat and Central AC	68.2%	88.5%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	3034	6.99%	212.0	0.000	0.700	0.300	0.700	25	\$2,245.98	Detached SF existing homes with non-electric heat and Central AC	68.2%	45.5%
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	3712	18.27%	678.0	0.000	0.700	0.800	0.700	25	\$2,670.30	Detached SF existing homes with non-electric heat and Central AC	68.2%	72.0%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	3712	20.15%	748.0	0.000	0.700	0.600	0.700	25	\$3,386.25	Detached SF existing homes with non-electric heat and Central AC	68.2%	72.0%
619	ENERGY STAR Windows	SFD	ROB	3034	-0.43%	-13.0	0.000	0.700	0.100	0.700	20	\$396.50	Detached SF existing homes with non-electric heat and Central AC	68.2%	11.2%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	3034	-1.78%	-54.0	0.000	0.700	0.000	0.700	25	\$1,259.94	Detached SF existing homes with non-electric heat and Central AC	62.0%	19.0%
	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	3034	-1.98%	-60.0	0.000	0.700	0.000	0.700	25	\$1,597.75	Detached SF existing homes with non-electric heat and Central AC	62.0%	19.0%
621	noor mountain no to it is (cost fer equite root mounted)														1
621 622		SFD	Retrofit	3034	7.35%	223.0	0.000	0.700	0.300	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	68.2%	25.0%
	HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per s of living space for a typical single-family home)	SFD SFD	Retrofit Retrofit	3034 2399	7.35% 2.13%	223.0 51.0	0.000	0.700	0.300	0.700	14 15	\$497.62 \$766.50	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and room AC	68.2% 6.8%	25.0%
622	HVAC Duct Sealing (Cost per typical single-family home)		Retrofit		1.5570										

Measure	Assum	ntions	PECO

	Assumptions - PECO	Home		D			Per Unit		Per Unit						
		Type	ROB vs.	Base Elec.	% Elec.	Annual Elec.	Winter	Winter	Summer	e	Useful	Ter on one on to 1		Base	EE
Measure	Measure Name	(SFA,	Retrofit	Use	Savings		Demand	CF	Demand	Summer CF	Life	Incremental /Full Cost	Measure/End Use Description	Saturation	
		SFD,	vs. NC	(kWh)	Savings	(kWh)	Savings	Сг	Savings	Cr	Life	/ Full Cost		Saturation	Saturation
(8)		MF) SED	<b>D</b> 5	× /	31.13%	981.0	(kW) 0.000	0.700	(kW) 0.900	0.580		\$2,903,34		6.004	
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	0115	Retrofit	3151 2399	9.55%	981.0 229.0	0.000	0.700	0.900	0.580	25 25	<i>q</i> 2,705.51	Detached SF existing homes with non-electric heat and room AC	6.8% 6.8%	88.5% 45.5%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD SFD		2399	9.55%	22710	0.000	0.700	0.500	0.580	25		Detached SF existing homes with non-electric heat and room AC		45.5%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit Retrofit	3073		674.0 740.0	0.000	0.700	0.500	0.580	25		Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	6.8% 6.8%	72.0%
630	ENERGY STAR Windows	SFD		2399	= 110 0 7 2	-3.0	0.000	0.700	0.000	0.580	20		Detached SF existing homes with non-electric heat and room AC	6.8%	11.2%
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	2399	-7.67%	-184.0	0.000	0.700	0.000	0.580	25	\$1,259,94	Detached SF existing homes with non-electric heat and room AC	6.2%	19.0%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	2399	-8.46%	-203.0	0.000	0.700	0.000	0.580	25		Detached SF existing homes with non-electric heat and room AC	6.2%	19.0%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	2399	3.25%	78.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	6.8%	25.0%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	9399	12.60%	1184.0	0.000	0.700	0.000	0.700	15	\$497.70	Attached SF existing homes with electric heat and Central AC	8.3%	20.0%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	11820	20.48%	2421.0	1.600	0.700	0.500	0.700	25	\$1,097.05	Attached SF existing homes with electric heat and Central AC	8.3%	88.5%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	11820	26.74%	3161.0	2.100	0.700	0.600	0.700	25	\$1,458.78	Attached SF existing homes with electric heat and Central AC	8.3%	88.5%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	11820	27.82%	3288.0	2.100	0.700	0.600	0.700	25	\$1,885.74	Attached SF existing homes with electric heat and Central AC	8.3%	88.5%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	9399	9.22%	867.0	0.500	0.700	0.100	0.700	25	\$1,458.78	Attached SF existing homes with electric heat and Central AC	8.3%	45.5%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	11887	20.93%	2488.0	1.500	0.700	0.200	0.700	25	\$2,073.59	Attached SF existing homes with electric heat and Central AC	8.3%	72.0%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	11887	23.04%	2739.0	1.600	0.700	0.200	0.700	25	\$2,629.55	Attached SF existing homes with electric heat and Central AC	8.3%	72.0%
641	ENERGY STAR Windows	SFA	ROB	9399	8.86%	833.0	0.500	0.700	0.000	0.700	20	\$495.30	Attached SF existing homes with electric heat and Central AC	8.3%	11.2%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	9399	0.43%	40.0	-0.100	0.700	-0.100	0.700	25	\$818.34	Attached SF existing homes with electric heat and Central AC	7.6%	19.0%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	9399	0.50%	47.0	-0.200	0.700	-0.100	0.700	25	\$1,037.75	Attached SF existing homes with electric heat and Central AC	7.6%	19.0%
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	9399	6.04%	568.0	1.500	0.700	0.200	0.700	14	\$342.66	Attached SF existing homes with electric heat and Central AC	8.3%	25.0%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1801	2.78%	50.0	0.000	0.700	0.000	0.700	15	\$497.70	Attached SF existing homes with non-electric heat and Central AC	33.3%	20.0%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	2101	14.28%	300.0	0.000	0.700	0.500	0.700	25	\$1,097.05	Attached SF existing homes with non-electric heat and Central AC	33.3%	88.5%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	2101	18.61%	391.0	0.000	0.700	0.600	0.700	25	\$1,458.78	Attached SF existing homes with non-electric heat and Central AC	33.3%	88.5%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	2101	19.32%	406.0	0.000	0.700	0.600	0.700	25	\$1,885.74	Attached SF existing homes with non-electric heat and Central AC	33.3%	88.5%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1801	5.89%	106.0	0.000	0,700	0.100	0.700	25	\$1,458.78	Attached SF existing homes with non-electric heat and Central AC	33.3%	45.5%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1965	8.35%	164.0	0.000	0.700	0.200	0.700	25	\$2,073.59	Attached SF existing homes with non-electric heat and Central AC	33.3%	72.0%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1965	9.16%	180.0	0.000	0.700	0.200	0.700	25	\$2,629.55	Attached SF existing homes with non-electric heat and Central AC	33.3%	72.0%
652	ENERGY STAR Windows	SFA	ROB	1801	-1.55%	-28.0	0.000	0.700	0.100	0.700	20	\$495.30	Attached SF existing homes with non-electric heat and Central AC	33.3%	11.2%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1801	-5.83%	-105.0	0.000	0,700	-0.100	0.700	25	\$818.34	Attached SF existing homes with non-electric heat and Central AC	30.3%	19.0%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1801	-6.72%	-121.0	0.000	0.700	-0.100	0.700	25	\$1,037.75	Attached SF existing homes with non-electric heat and Central AC	30.3%	19.0%
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1801	8.55%	154.0	0.000	0.700	0.200	0.700	14	\$342.66	Attached SF existing homes with non-electric heat and Central AC	33.3%	25.0%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1320	4.24%	56.0	0.000	0.700	0.000	0.580	15	\$497.70	Attached SF existing homes with non-electric heat and room AC	29.2%	20.0%
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1658	20.39%	338.0	0.000	0.700	0.500	0.580	25	\$1,097.05	Attached SF existing homes with non-electric heat and room AC	29.2%	88.5%
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SEA	Retrofit	1658	26.90%	446.0	0.000	0.700	0.600	0.580	25	\$1.458.78	Attached SF existing homes with non-electric heat and room AC	29.2%	88.5%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1658	28.05%	465.0	0.000	0.700	0.600	0.580	25	\$1,885.74	Attached SF existing homes with non-electric heat and room AC	29.2%	88.5%
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1320	9.62%	127.0	0.000	0.700	0.100	0.580	25	\$1,458.78	Attached SF existing homes with non-electric heat and room AC	29.2%	45.5%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1493	11.59%	173.0	0.000	0,700	0.200	0.580	25	\$2.073.59	Attached SF existing homes with non-electric heat and room AC	29.2%	72.0%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1493	12.79%	191.0	0.000	0.700	0.200	0.580	25	\$2,629.55	Attached SF existing homes with non-electric heat and room AC	29.2%	72.0%
663	ENERGY STAR Windows	SFA	ROB	1320	-0.45%	-6.0	0.000	0.700	0.000	0.580	20	\$495.30	Attached SF existing homes with non-electric heat and room AC	29.2%	11.2%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1320	-14.77%	-195.0	0.000	0.700	0.100	0.580	25	\$818.34	Attached SF existing homes with non-electric heat and room AC	26.5%	19.0%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SEA	Retrofit	1320	-17.35%	-229.0	0.000	0.700	0.100	0.580	25	\$1.037.75	Attached SF existing homes with non-electric heat and room AC	26.5%	19.0%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1320	3.79%	50.0	0.000	0.700	0.100	0.580	14	\$342.66	Attached SF existing homes with non-electric heat and room AC	29.2%	25.0%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	3403	17.93%	610.0	0.100	0.700	0.100	0.700	15	\$361.20	MF existing homes with electric heat and central AC	8.3%	20.0%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	3841	11.40%	438.0	0.200	0.700	0.100	0.700	25	\$1,221.30	MF existing homes with electric heat and central AC	8.3%	72.0%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	3841	12.52%	481.0	0.300	0.700	0.100	0.700	25		MF existing homes with electric heat and central AC	8.3%	72.0%
670	ENERGY STAR Windows	MF	ROB	3403	15.99%	544.0	0.400	0.700	0.100	0.700	20	- /	MF existing homes with electric heat and central AC	8.3%	24.2%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	3403	11.43%	389.0	1.100	0.700	0.100	0.700	14	\$263.97	MF existing homes with electric heat and central AC	8.3%	25.0%
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	1260	1.90%	24.0	0.000	0.700	0.100	0.700	14		MF existing homes with non-electric heat and central AC	33.3%	20.0%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	1200	1.90%	24.0	0.000	0.700	0.100	0.700	25		MF existing homes with non-electric heat and central AC	33.3%	72.0%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	1284	2.02%	26.0	0.000	0.700	0.100	0.700	25	÷-,==-:00	MF existing homes with non-electric heat and central AC	33.3%	72.0%
675	ENERGY STAR Windows	MF	ROB	1264	-2.54%		0.000	0.700	0.000	0.700	20	11,0 10110	MF existing homes with non-electric heat and central AC	33.3%	24.2%
(7)	UWAC Durt Serling (Cost and torial multi-family home)	MF	Retrofit	1260	16.83%	-32.0 212.0	0.000	0.700	0.100	0.700	14	\$263.97	ME mining homes with non-alastic best and materia A.C.	33.3%	25.0%
676 677	HVAC Duct Sealing (Cost per typical multi-family home)	MF		1260	16.83%	-44.0	0.000	0.700	0.100	0.700	14	\$263.97 \$361.20	MF existing homes with non-electric heat and central AC	33.3% 29.2%	25.0%
	Air Sealing (cost per sf of living space for a typical multi-family home)		Retrofit Retrofit	14//	-2.98%	-44.0 14.0	0.000	0.700	0.100	0.580	25	\$361.20 \$1,221.30	MF existing homes with non-electric heat and room AC	29.2%	20.0%
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	1491 1491	0.94%	14.0	0.000	0.700	0.000	0.580	25	\$1,221.30 \$1,548.75	MF existing homes with non-electric heat and room AC	29.2%	72.0%
679 680	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	MF	ROB	1491 1477	-3.52%	-52.0	0.000	0.700	0.000	0.580	25		MF existing homes with non-electric heat and room AC MF existing homes with non-electric heat and room AC	29.2%	24.2%
0.00							0.000						5		_
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	1477	22.48%	332.0	0.000	0.700	0.000	0.580	14	\$263.97	MF existing homes with non-electric heat and room AC	29.2%	25.0%

Measure	Assumptions - PECO	Home					Per Unit		Per Unit						
		Туре	ROB vs.	Base		Annual	Winter		Summer	_				_	
Measure	Measure Name	(SFA,	Retrofit	Elec.	% Elec.	Elec.	Demand	Winter	Demand	Summer	Useful	Incremental	Measure/End Use Description	Base	EE
		SFD,	vs. NC	Use (kWh)	Savings	Savings (kWh)	Savings	CF	Savings	CF	Life	/Full Cost	•	Saturation	Saturation
701		MF)	Deter Ct	17254	1.85%	319.0	(kW) 0.000	1.000	(kW)	1.000	15	\$25.00	Detail 1001	15.9%	61.8%
701 702	Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance)	SFD SFD	Retrofit Retrofit	1/254	9.52%	1299.0	0.000	0.700	-0.300	0.700	15	\$25.00 \$100.00	Detached SF homes with heat pumps	15.9%	61.8%
702	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	13650	9.52% 5.52%	753.0	0.000	0.700	0.100	0.700	12	\$100.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	15.9%	8.0%
		1			1		0.000					-			
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	13650	8.01%	1094.0	0.000	0.700	0.200	0.700	12	\$1,644.00	Detached SF homes with heat pumps	15.9%	8.0%
705	GSHP w/ Desuperheater	SFD	ROB	13650	38.37%	5237.0	0.000	0.700	0.300	0.700	30	\$10,750.00	Detached SF homes with heat pumps	15.9%	8.0%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	13650	24.41%	3332.0	5.300	0.700	0.800	0.700	15	\$1,200.00	Detached SF homes with heat pumps	15.9%	8.0%
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	13650	31.60%	4313.0	0.000	0.700	0.300	0.700	30	\$10,500.00	Detached SF homes with heat pumps	15.9%	8.0%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	2170	11.34%	246.0	0.000	0.000	0.400	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	84.1%	8.0%
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	2170	15.94%	346.0	0.000	0.000	0.500	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	84.1%	8.0%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	3034	10.02%	304.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	84.1%	69.6%
/10	Trane op (cooling season only rule op)	31.D	Retiont	3034	10.0270	.504.0	0.000	0.000	0.000	0.700	1	\$20:00	Detached SF existing nomes with central AC	04.170	09.070
711	Furnace High Efficiency Fan	SFD	Retrofit	3034	14.70%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	81.8%	10.0%
											-		-		
712	Programmable Thermostat (CAC)	SFD	Retrofit	3087	1.72%	53.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	84.1%	61.8%
713	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Detached SF existing homes with non-electric furnace	81.8%	10.0%
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$40.00	Detached SF homes with room AC	18.2%	0.0%
															4'
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$40.00	Detached SF homes with room AC	18.2%	0.0%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	9554	1.62%	155.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	4.2%	61.8%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	9399	7.44%	699.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	4.2%	67.7%
718		SFA	ROB	7587	5.52%	419.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	4.2%	8.0%
/10	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	эгл	KOB	/ 36/	3.3270	419.0	0.000	0.700	0.100	0.700	12	\$622.00	Attached SF existing nomes with heat pump	4.270	0.070
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	7587	8.01%	608.0	0.000	0.700	0.200	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	4.2%	8.0%
720	GSHP w/ Desuperheater	SFA	ROB	7587	26.95%	2045.0	0.000	0.700	0.200	0.700	30	\$10,750.00	Attached SF existing homes with heat pump	4.2%	8.0%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	7587	28.93%	2195.0	2.200	0.700	0.400	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	4.2%	8.0%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	7587 1288	19.09%	1448.0 146.0	0.000	0.700	0.300	0.700	30	\$10,500.00	Attached SF existing homes with heat pump	4.2%	8.0%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA SFA	ROB ROB	1288	11.34% 15.92%	205.0	0.000	0.000	0.100	0.700	14 14	\$1,333.00 \$2,407.00	Attached SF homes with Central AC	37.5% 37.5%	8.0% 8.0%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons) HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1288	9.99%	205.0	0.000	0.000	0.200	0.700	7	\$2,407.00	Attached SF homes with Central AC Attached SF homes with Central AC	37.5%	8.0% 69.6%
725	Furnace High Efficiency Fan	SFA	Retrofit	1801	9.99% 24.76%	446.0	0.000	1.000	0.000	1.000	18	\$50.00	Attached SF homes with central AC Attached SF homes with non-electric furnace	66.7%	10.0%
720	Programmable Thermostat (CAC)	SFA	Retrofit	1801	1.80%	33.0	0.000	0.000	0.000	0.700	15	\$200.00	Attached SF homes with Central AC	37.5%	61.8%
728	Furnace Whistle	SFA	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	66.7%	10.0%
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$40.00	Attached SF homes with room AC	79.2%	0.0%
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	353	7.37%	26.0	0.000	0.000	0.081	0.580	4	\$40.00	Attached SF homes with room AC	79.2%	0.0%
731	Programmable Thermostat (ASHP)	MF	Retrofit	3369	-1.01%	-34.0	0.000	1.000	0.000	1.000	15	\$25.00	MF homes with heat pump	4.2%	61.8%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	3403	4.53%	154.0	0.000	0.700	0.100	0.700	7	\$100.00	MF homes with heat pump	4.2%	67.7%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	2759	5.91%	163.0	0.000	0.700	0.100	0.700	12	\$822.00	MF homes with heat pump	4.2%	8.0%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	2759	8.41%	232.0	0.000	0.700	0.100	0.700	12	\$1,644.00	MF homes with heat pump	4.2%	8.0%
735	GSHP w/ Desuperheater	MF	ROB ROB	2759	30.63%	845.0	0.000	0.700	0.100	0.700	30		MF homes with heat pump	4.2%	8.0%
736	Ductless Mini-Split Heat Pumps Ground Source Heat Pumps (GSHP)	MF	ROB	2759 2759	22.36% 14.93%	617.0 412.0	0.000	0.700	0.200	0.700	15		MF homes with heat pump MF homes with heat pump	4.2% 4.2%	8.0% 8.0%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	901	14.93%	102.0	0.000	0.000	0.100	0.700	14	\$1,333.00	MF homes with Central AC	4.270	8.0%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	901	15.87%	143.0	0.000	0.000	0.200	0.700	14	\$2,407.00	MF homes with Central AC	37.5%	8.0%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	1260	10.00%	126.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	37.5%	69.6%
741	Furnace High Efficiency Fan	MF	Retrofit	1260	35.40%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	66.7%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	1192	-5.70%	-68.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	37.5%	61.8%
743	Furnace Whistle	MF	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	66.7%	10.0%
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$40.00	MF homes with room AC	79.2%	0.0%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.081	0.580	4	\$40.00	MF homes with room AC	79.2%	0.0%
800	Whole House	0.555	n 6							0.000		<b>A</b> 110.00		11.10(	
801	Direct (Real Time) Feedback	SFD	Retrofit	27504	6.15%	1691.5	1.363	0.700	1.363	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	11.4%	2.0%
802 803	Indirect Feedback (O-Power) Direct (Real Time) Feedback	SFD SFD	Retrofit Retrofit	27504 7346	2.23% 6.15%	613.3 451.8	0.494 0.364	0.700	0.494	0.700	2	\$22.50 \$140.00	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	11.4% 68.2%	2.0%
803	Indirect (Keal Time) Feedback Indirect Feedback (O-Power)	SFD	Retrofit	7346	6.15% 2.23%	451.8	0.364	0.700	0.364	0.700	2	\$140.00 \$22.50	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	68.2%	2.0%
804	Direct (Real Time) Feedback	SFD	Retrofit	6711	6.15%	412.7	0.132	0.700	0.333	0.580	3	\$22.50 \$140.00	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and room AC	6.8%	2.0%
806	Indirect Feedback	SFD	Retrofit	6711	2.23%	149.7	0.121	0.700	0.121	0.580	2	\$22.50	Detached SF existing homes with non-electric heat and room AC	6.8%	2.0%
807	Direct (Real Time) Feedback	SFA	Retrofit	17687	6.15%	1087.8	0.877	0.700	0.877	0.700	3	\$140.00	Attached SF existing homes with hor-electric heat and foom AC	8.3%	2.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	17687	2.23%	394.4	0.318	0.700	0.318	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	8.3%	2.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	4835	6.15%	297.4	0.240	0.700	0.240	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	33.3%	2.0%
		CEA	Retrofit	4835	2.23%	107.8	0.087	0.700	0.087	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	33.3%	2.0%
810	Indirect Feedback (O-Power)	SFA	Renout	4055	2.2.370	107.0	0.007	0.700	0.007	0.700	-	ę11.50	Attached 51 existing homes with hom-electric near and Gentral AG	55.576	

Measure Assumptions - PECO
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Measure	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	(kWh)	_	(kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Demand Savings (kW)	Summer CF	Useful Life	/ 1 un 0000	Measure/End Use Description	Base Saturation	
812	Indirect Feedback (O-Power)	SFA	Retrofit	4354	2.23%	97.1	0.078	0.700	0.078	0.580	2	\$22.50	Attached SF existing homes with non-electric heat and room AC	29.2%	2.0%
813	Direct (Real Time) Feedback	MF	Retrofit	10975	00	675.0	0.544	0.700	0.544	0.700	3	\$140.00	MF existing homes with electric heat and central AC	8.3%	2.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	10975	2.23%	244.7	0.197	0.700	0.197	0.700	2		MF existing homes with electric heat and central AC	8.3%	2.0%
815	Direct (Real Time) Feedback	MF	Retrofit	3434	6.15%	211.2	0.170	0.700	0.170	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	33.3%	2.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	3434	2.23%	76.6	0.062	0.700	0.062	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	33.3%	2.0%
817	Direct (Real Time) Feedback	MF	Retrofit	3651	6.15%	224.5	0.181	0.700	0.181	0.580	3	\$140.00	MF existing homes with non-electric heat and room AC	29.2%	2.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	3651	2.23%	81.4	0.066	0.700	0.066	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	29.2%	2.0%
900	New Construction														
901	Residential New Construction-Tier 1	SFD	NC	19183	15.00%	2877.5	1.275	0.700	0.510	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	25.0%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	19183	30.00%	5754.9	2.550	0.700	1.020	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	25.0%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	8529	15.00%	1279.4	0.105	0.700	0.405	0.700	15	\$3752.00	New construction detached SF homes w/ non-electric heat and Central AC	75.0%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	8529	30.00%	2558.7	0.210	0.700	0.810	0.700	15	\$5.628.00	New construction detached SF homes w/ non-electric heat and Central AC	75.0%	0.0%
905	Residential New Construction Tier 1	MF	NC	10044	15.00%	1506.6	0.345	0.700	0.270	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	10.0%	0.0%
906	Residential New Construction Tier 2	MF	NC	10044	30.00%	3013.2	0.690	0.700	0.540	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	10.0%	0.0%
907	Residential New Construction Tier 1	MF	NC	4456	15.00%	668.4	0.060	0.700	0.165	0.700	15	\$1,876.00	New construction MF homes with gas heat and Central AC	90.0%	0.0%
908	Residential New Construction Tier 2	MF	NC	4456	30.00%	1336.8	0.120	0.700	0.330	0.700	15	\$2,814.00	New construction MF homes with gas heat and Central AC	90.0%	0.0%

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100	Water Heating End Use Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-		PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 because the kW demand impact for this measure was already on a coincident
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA	GDS research	PECO 2011	GDS estimate	peak basis.
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF Note 1	PA TRM	Note 1 *See CF Note 1	TRM PA TRM	GDS research	PECO 2011	GDS estimate	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	The American Council for an Energy-Efficient Economy	PECO 2011	PECO 2011	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	GDS estimate	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PECO 2011	GDS estimate	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PECO 2011/PA TRM	PECO 2011	1.6 cligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011/PA TRM	PECO 2011	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PECO 2011	PECO 2011	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	OHIO TRM	PECO 2011	PECO 2011	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	GDS estimate	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PECO 2011	GDS estimate	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PECO 2011/PA TRM	PECO 2011	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011/PA TRM	PECO 2011	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PECO 2011	PECO 2011	
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	The American Council for an Energy-Efficient Economy	PECO 2011	PECO 2011	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	GDS estimate	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	PECO 2011	GDS estimate	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google.com	PECO 2011/PA TRM	PECO 2011	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PECO 2011/PA TRM	PECO 2011	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	PECO 2011	PECO 2011	
200 201	Lighting Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PECO 2011 / GDS	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS estimate	PA Baseline	
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	Base saturation is an approximate value from baseline study
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011 / GDS esimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70D28E5A37AB83530112q=Residential+Occupancy+Sensors&pfp=0&e1 pq=Residential%2bSceupancy%2bSensors&HORM=CPCA&ppc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011 / GDS esimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decore-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70D28E5A37.M88353011?q=Residential+Occupancy+Sensors&lpf=0& pq=Residential%2Doccupancy2M2Sensors&HORM=CPCA&lppc=16
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011 / GDS esimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey: http://www.bing.com/shopping/pr180-11w-dccora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70D28E5A37AB83530112q=Residential+Occupancy+Sensors&pf1=0& pq=-Residential%2bCocupancy*2bSensors&FORM=CPCA&phpc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PECO 2011	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
218	LED Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS estimate	PA Baseline	Base saturation is a GDS estimate that the average number of outdoor fixtures per home is 1
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS estimate	EnergyStar Market Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70D28E5A37AB88350112q=Residential+Occupancy+Sensors&lpf=0& pq=Residential%25Doccupancy%25Bersors&HORM=CPCA&ptpc=16

Measure /	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70128453A37AB8535011?q=Residential+Occupancy+Sensors&Df=0&U g=Residential%2Doccupancy%2Sensors&FORM=CPCA&Dpc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A701284E5A37AB8535011?q=Residential+Occupancy+Sensors&pf1=0&0 g=Residential%2Doccupancy%2Sensors&FORM=CPCA&ppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PECO 2011	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	calculation PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS estimate	PA Baseline	Base saturation is a GDS estimate that the average number of outdoor fixtures per home is 1
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS estimate	PA Baseline	
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS estimate	EnergyStar Market Penetration Summary	
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.biag.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70628E3A37AB8535011?q=Residential+Occupancy+Sensors&pf=0&0 pg=Residentia%2Doccupancy%2Sensors&FORM=CPCA&ppc=16
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70128453A37AB8535017q=Residential+Occupancy+Sensors&Pf=0&U g=Residential*2Occupancy%2Sensors&FORM=CPCA&ppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PECO 2011	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey: http://www.bing.com/sbopping/pr180-lbe-decora-passive-infrared-wall-switch- occupancy-sensor /where-to- buy/A70128E3A37AB85350179=Residential+Occupancy+Sensors&pf2=0&0 pg=Residential*2Occupancy+2dSensors&PORM=CPCARepc=16
300 301	Applances Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PECO 2011	PECO 2011	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PECO 2011	PECO 2011	
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator, EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	

Measure	Assumptions Sources - PECO	1								1					
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PECO 2011	PECO 2011	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA	MID-ATL TRM	PECO 2011	PECO 2011	
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	EnergyStar Market Penetration Summary	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS estimate	GDS estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	http://www.bing.com/shopping/search2q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&rt=Com pletions&rk=&spv=&sl=E≻=&st=*=AAAAAAA##x0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO	PECO 2011	PECO 2011	
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO	PECO 2011	PECO 2011	
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PECO 2011	PECO 2011	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	EnergyStar Market Penetration Summary	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS estimate	GDS estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&rt=Con pletions&tk=&spv=&sl=E≻=&sst=*=AAAAAAAA#x0y0
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO	PECO 2011	PECO 2011	
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO	PECO 2011	PECO 2011	
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
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Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PECO 2011	PECO 2011	
348	Energy Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PECO 2011	PECO 2011	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	1	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	EnergyStar Market Penetration Summary	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS estimate	GDS estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&ert=Com pletions&rk=&spv=&sl=E≻=&st=*=AAAAAAAAA
400	Electronics										РА	PPL PY2 Report-		EnergyStar Market	
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	Cited EnergyStar	PECO 2011	Penetration Summary	Savings - PA TRM p.122
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary EnergyStar Market	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	GDS estimate	Penetration Summary EnergyStar Market	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM PA	Best Buy EnergyStar	GDS estimate	Penetration Summary	
407	>50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	Calculator EnergyStar	PECO 2011	PECO 2011	
408	<50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM PA	Calculator	PECO 2011	PECO 2011	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	VERMONT TRM	GDS estimate	GDS estimate EnergyStar Market	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PECO 2011	Penetration Summary EnergyStar Market	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	Penetration Summary EnergyStar Market	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM PA	Best Buy	GDS estimate	Penetration Summary EnergyStar Market	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM PA	Best Buy	GDS estimate	Penetration Summary EnergyStar Market	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM PA	PPL PY2 Report- Cited EnergyStar	GDS estimate	Penetration Summary EnergyStar Market	
415	ENERGY STAR Printer	SFA SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA	Best Buy EnergyStar	GDS estimate PECO 2011	Penetration Summary PECO 2011	
410	<50 in <50 in	SFA	ROB		-	PA TRM PA TRM	PA TRM PA TRM	PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA	Calculator EnergyStar	PECO 2011 PECO 2011	PECO 2011 PECO 2011	
417		SFA		-		PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA	Calculator VERMONT TRM	GDS estimate		
418	Smart Strip Plug Outlets	SPA	Retrofit	-	-				PA 1KM		TRM			GDS estimate EnergyStar Market	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM PA	PPL PY2 Report- Cited EnergyStar	PECO 2011	Penetration Summary EnergyStar Market	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	Penetration Summary	

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
423	ENERGY STAR Multifunction	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	GDS estimate	EnergyStar Market Penetration Summary	
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
425	>50 in	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011 / GDS esimate	PECO 2011	
426	<50 in	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011 / GDS esimate	PECO 2011	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS estimate	GDS estimate	
500 501	Pool High Efficiency Two-Speed Pool Pump	SFD	ROB			PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA	MID-ATL TRM	PECO 2011 /	GDS estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings-
502	High Efficiency Two-speed Pool Pump Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM /	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	TRM PA TRM	MID-ATL TRM	GDS esimate PECO 2011 / GDS esimate	GDS estimate	PA and Mid Atlantic TRMs Base sat. assumes that half of homes with a pool/spa pump have a pool; $PA$ TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio
503		SFA	ROB			PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA	MID-ATL TRM	PECO 2011 /	GDS estimate	TRM
503	High Efficiency Two-Speed Pool Pump Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM PA TRM	PA TRM / Ohio TRM	PA TRM PA TRM	TRM PA TRM	MID-ATL TRM	GDS esimate PECO 2011 / GDS esimate	GDS estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - kW <sub>ss</sub> and kW <sub>VRD</sub> parameters taken from Ohio
505	High Efficiency Two-Speed Pool Pump	MF	ROB			PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA	MID-ATL TRM	PECO 2011 /	GDS estimate	TRM Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	TRM PA TRM	MID-ATL TRM	GDS esimate PECO 2011 / GDS esimate	GDS estimate	Base sat, assumes that half of homes with a pool/yap pump have a pool Base sat, assumes that half of homes with a pool/yap pump have a pool; PA TRM algorithm for savings used - kW <sub>ss</sub> and kW <sub>WPD</sub> parameters taken from Ohio TRM
600 601	IIVAG(Envelope) Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO); ** wall insulation = area of walls - area of windows * price per sq ft
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 11.36*90.91% (90.91% = homes w/out slab found.)
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 11.36*90.91% (90.91% = homes w/out slab found.)
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	GDS estimate	
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 68.18*90.91% (90.91% = homes w/out slab found.)
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 68.18*90.91% (90.91% = homes w/out slab found.)
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	GDS estimate	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
630	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
631	Hoor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = $6.82*90.91\%$ ( $90.91\%$ = homes w/out slab found.)
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = $6.82*90.91\%$ (90.91% = homes w/out slab found.)
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	$1.55/sq$ ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = $8.33^{\rm s}90.91\%$ (90.91% = homes w/out slab found.)
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	$1.86/sq$ ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = $8.33^{*9}0.91\%$ (90.91% = homes w/out slab found.)
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 33.33*90.91% (90.91% = homes w/out slab found.)
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 33.33*90.91% (90.91% = homes w/out slab found.)
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO);EE sat. based on survey - 88.52% of all homes have attic insulation
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey - 88.52% of all homes have attic insulation
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 29.17*90.91% (90.91% = homes w/out slab found.)

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO); base sat. = 29.17*90.91% (90.91% = homes w/out slab found.)
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
670	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
675	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PECO	PECO 2011	GDS estimate	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO)
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PECO	PECO 2011	PECO 2011	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
680	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	\$325 per 100 square feet of windows multiplied by square footage
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PECO 2011	GDS estimate	
700 701	HVAC (Equipment/Controls) Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF	REMRate/TRM	*See CF	PA	Home Depot	PECO 2011	PECO 2011	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	Note 1 PA TRM	RemRate	Note 1 PA TRM	TRM PA	Home Depot	PECO 2011	PECO 2011	
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	TRM PA	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	TRM PA	DEER database	PECO 2011	PECO 2011	source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	TRM PA	Ultra-geothermal.	PECO 2011	PECO 2011	source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
706	Ductless Mini-Split Heat Pumps	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Inc, Barrington, NH Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PECO 2011	PECO 2011	per ton) plus \$250 premium for desuperheater cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiencg%20%20FINAL%20.pdf
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	http://www.geother mal-heat-pump- resource.org/ (incremental cost of \$3000 per ton)	PECO 2011	PECO 2011	
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	PECO 2011	GDS estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PECO 2011	GDS estimate	

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	Base saturation is from PECO baseline study; adjusted for units that are already EnergyStar rated
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	Base saturation is from PECO baseline study; adjusted for units that are already EnergyStar rated
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PECO 2011	PECO 2011	
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
720	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Ultra-geothermal. Inc, Barrington, NH	PECO 2011	PECO 2011	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
721	Duetless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PECO 2011	PECO 2011	eost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	http://www.geother mal-heat-pump- resource.org/ (incremental cost of \$3000 per ton)	PECO 2011	PECO 2011	
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	PECO 2011	GDS estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PECO 2011	GDS estimate	
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PECO 2011	PECO 2011	
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Ultra-geothermal. Inc, Barrington, NH	PECO 2011	PECO 2011	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PECO 2011	PECO 2011	enst source: http://www.stacenergy.org/Closing%20/Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiencs%20%20HINAL%20.pdf
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	http://www.geother mal-heat-pump- resource.org/ (incremental cost of \$3000 per ton)	PECO 2011	PECO 2011	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	PECO 2011	PECO 2011	
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	PECO 2011	GDS estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PECO 2011	PECO 2011	
743	Furnace Whistle	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PECO 2011	GDS estimate	

Measure	Assumptions Sources - PECO														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	PECO (email from Nicholas DeDominicis)	PECO 2011	GDS estimate	
800	Whole House	0170	n - 6	n n		Vermont	11 (170.) (	GDS	17 (TD) (	GDS	PA	11 (m)) (	DECO ANIA	600 i .	
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate	Vermont TRM	estimate	TRM	Vermont TRM	PECO 2011	GDS estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PECO 2011	GDS estimate	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PECO 2011	PECO / GDS estimate	Data from the PECO Smart Home E-Audit from March 2010-January 2012 was used to generate an EE estimate; cost is \$15 (from Opower), half is an annual fee that must be paid twice over a 2 year measure life so cost=15*1.5=22.5
900	New Construction							GDS		GDS	GDS	EnergyStar Homes			
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	GDS	estimate GDS	Report EnergyStar Homes	GDS estimate	GDS estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	estimate	RemRate	estimate	estimate	Report	GDS estimate	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	GDS estimate	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS cstimate	EnergyStar Homes Report	GDS estimate	GDS estimate	
905	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	GDS estimate	GDS estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS	GDS	EnergyStar Homes Report	GDS estimate	GDS estimate	
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS	RemRate	GDS	GDS	EnergyStar Homes Report	GDS estimate	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS	RemRate	GDS	GDS	EnergyStar Homes	GDS estimate	GDS estimate	
								estimate		estimate	estimate	Report			

Amazon: Retail prices derived from Amazon's website Best Buy: Retail prices derived from Best Buy's website Bing.com: Retail prices derived from Bing Shopping CT Lighting CP Report: Connecticuit Lighting Connicidence Factor Report DELR database: California database of Energy Efficiency Resources

Measure	Assumptions Sources - PECO													
Measure	: Measure Name	ROB vs. Retrofit vs. NC	Base Elec. Use	% Elec. Savings	Savings	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes

EnergyStar: government-backed website that helps protect the environment through superior energy efficiency EnergyStar 2011 Savings and Costs EnergyStar Zollaulaor: service provided by EnergyStar to help estimate savings, useful life, and cost

EnergyStar Calculator: service provided by EnergyStar to help estimate savings, useful life, and cost EnergyStar Homes Report EnergyStar Homes Report EnergyStar Potentation Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations GDS: GDS sociates Calculation / Assumption. See measure-specific notes. GDS Measure Life Report SPWG and GDS's document of a set of measure life values for selected measures Google.com: Retail prices derived from Google Shopping Home Depot: Retail prices derived from Lowe's beyStar. (LOWE): Retail prices derived from Lowe's beyStar. MID-ATI, TRM: Mid-Adamic Technical Reference Manual Version 2.0 Navients 0211. Identibus methods and method for Communication at the INTRV Energy Research Subcompilitate to under to intermental occur.

Navigant 2011: describes methods and results of ICS, commissioned by the EM&V Forum Research Subcommittee to update incremental costs for measures

Opower: information used for calculating indirect feedback Ohio TRM: Ohio Technical Reference Manual

PA Baseline: Pennsylvania Baseline study, conducted by GDS

PA TRM: Pennsylvania Technical Reference Manual PA TRM: / Ohio TRM: Pennsylvania Technical Reference Manual / Ohio Technical Reference Manual

PECO 2011: data calculated from PECO's residential survey

REM/Reit: Building Energy Modeling Software: Prototype homes were modeled based on average characteristics using the PECO Energy Baseline Study, February 2011 The American Council for an Energy-Efficient Economy: Report on technical and policy issues relating to energy efficiency Vermont TRM: Vermont Technical Reference Manual

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Measure Measure	Assumptions - Penelec Measure Name Water Heating End Use	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings		Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
100	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	40.5%	22.0%
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	40.5%	22.0%
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	40.5%	22.0%
104	Solar Water Heaters	SFD	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	40.5%	0.0%
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	40.5%	0.0%
106	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	SFD	ROB Retrofit	-	-	2202.0 124.0	0.202	1.000	0.202	1.000	14	\$975.00 \$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	40.5%	0.0%
107	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.011	1.000	9	\$20.00	Homes w/Electric Water Heater	64.8%	84.2%
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	141.9%	57.5%
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	40.5%	5.9%
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	42.2%	22.0%
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	42.2%	22.0%
115	Efficient Electric Water Heaters- 0.95 Energy Factor Solar Water Heaters	SFA SFA	ROB ROB	-	-	217.0 2106.0	0.020	1.000	0.020	1.000	14	\$105.87 \$8,164.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	42.2%	0.0%
114	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	42.2%	0.0%
116	Heat Pump Water Heaters 2.3 Energy Factor	SFA	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	42.2%	0.0%
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	42.2%	8.8%
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	67.5%	84.2%
119	Low Flow Faucet Aerators Water Heater Tank Wrap	SFA SFA	Retrofit	-	-	61.0 97.0	0.056	1.000	0.056	1.000	12	\$2.00 \$50.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	147.7% 42.2%	57.5% 5.9%
120	Water Heater 1 ank Wrap Efficient Electric Water Heaters- 0.93 Energy Factor	MF	Retrofit	-	-	97.0	0.011 0.012	1.000	0.011 0.012	1.000	14	\$50.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	42.2%	5.9%
121	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	56.5%	22.0%
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	56.5%	22.0%
124	Solar Water Heaters	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	56.5%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	56.5%	0.0%
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	56.5%	0.0%
127 128	Electric Water Heater Pipe Insulation Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	124.0 461.0	0.011	1.000	0.011	1.000	13	\$18.00 \$20.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	56.5% 90.4%	8.8% 84.2%
128	Low Flow Showerheads- 1.5 GPM Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.042	1.000	0.042	1.000	12	\$20.00	Homes w/Electric Water Heater	197.7%	57.5%
130	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	56.5%	5.9%
200	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	197.5%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	33.7%	16.9%
203	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	33.7%	16.9%
204 205	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD SFD	ROB ROB	-	-	26.7 31.3	0.024 0.029	0.298	0.024	0.050	6	\$1.25 \$1.25	Homes with 60 Watt incandescent bulbs	100.0%	18.3%
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	45.1	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0%	18.3%
200	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	-	-	27.0	0.041	0.050	0.030	0.050	20	\$15.00	Homes with 100 watt includescent builds	100.0%	18.3%
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	18.3%
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	350.0%	18.3%
211	ENERGY STAR Torchieres	SFD	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	18.3%
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
215 216	Residential Occupancy Sensors- 23 W CFL	SFD SFA	Retrofit ROB	-	-	7.6 134.0	0.000	0.298	0.000	0.050	10 20	\$18.00 \$86.00	Homes with occupancy sensors Homes with ceiling fans that have light fixtures	0.0%	17.5%
216	Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.298	0.000	0.030	20	\$86.00	Homes with nightlights	33.7%	16.9%
217	LED Nightlight	SEA	ROB	-	-	20.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	33.7%	16.9%
210	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.000	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8%
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	35.8%
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	35.8%
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	35.8%
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	35.8%
226	ENERGY STAR Torchieres	SFA	ROB	-	-	60.4 10.6	0.066	0.050	0.066	0.050	10	\$25.00 \$20.00	Homes with torchieres	100.0%	35.8%
227	ENERGY STAR Holiday Lights	SFA SFA	ROB	-	-	4.6	0.000	0.000	0.000	0.000	10	\$20.00 \$18.00	Homes with holiday lights	60.0% 0.0%	16.7%
228	Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-		7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with occupancy schools Homes with ceiling fans that have light fixtures	49.0%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	33.7%	16.9%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	33.7%	16.9%
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	28.0%
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	28.0%
	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.0%
236		MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00 \$20.00	Homes with indoor fixtures	100.0%	28.0%
236 237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)		n											100.0%	28.0%
236 237 238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7		Homes with general service lamps		20.007
236 237 238 239	ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs -Reflector Lamp	MF MF	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	28.0%
236 237 238	ENERGY STAR LEDs - General Service Lamps	MF		-	-										28.0% 28.0% 28.0%

Measure	Assumptions - Penelec														
Measure	Measure Name	Home Type (SFA, SFD,	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings	Winter CF	Per Unit Summer Demand Savings	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
0.10		MF)	<b>D C</b>	(KWII)			(kW)	0.000	(kW)	0.050	40	C10.00	PF 1	0.00/	17.50/
243 244	Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00 \$18.00	Homes with occupancy sensors	0.0%	17.5%
244	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
300	Appliances		Retiont					0.270					romes war occupincy schools	0.070	11.570
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	15.7%	2.9%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	15.7%	2.9%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	72.3%	20.8%
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with side mount freezers without door ice	4.1%	20.8%
305	Energy Star bottom mount freezer without door ice Energy Star top mount freezer with door ice	SFD	ROB	-	-	116.0 124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice Homes with top mount freezers with door ice	6.4%	20.8%
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	21.6%	20.8%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	13.5%	12.5%
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	8.2%	12.5%
310	Energy Star chest freezer	SFD	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	39.8%	12.5%
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0 136.0	0.010	1.000	0.010	1.000	12	\$1.00 \$270.00	Homes with dehumidifiers	45.6%	85.3% 95.1%
312	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	224.0	0.046	1.000	0.046	1.000	10	\$270.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	67.8%	95.1% 25.3%
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	59.2%	25.3%
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.023	1.000	0.023	1.000	10	\$12.00	Homes with clothes waster and gas teat Homes with dishwasher and electric heat	22.9%	51.5%
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	37.2%	51.5%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	48.1%	12.1%
318	Energy Star Exhaust Fans	SFD	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	15	\$348.00	Homes with residential whole house fans	10.2%	9.1%
320	Refrigerator / Freezer Recycling and Replacement With a New Unit Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB ROB	-	-	1205.0 1659.0	0.241	0.620	0.241	0.620	7	\$120.00 \$120.00	Homes with secondary refrigerators Homes with secondary refrigerators	11.9%	2.9%
321	Energy Star top mount freezer without door ice	SFA	ROB	-	-	1659.0	0.552	1.000	0.552	1.000	13	\$120.00 \$95.00	Homes with secondary refrigerators Homes with top mount freezers without door ice	96.9%	2.9%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	2.0%	20.8%
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	0.0%	20.8%
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	20.8%
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	10.2%	20.8%
327	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	0.0%	12.5%
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	0.0%	12.5%
329 330	Energy Star chest freezer Energy Star dehumidifiers (35-45 pints/day)	SFA SFA	ROB ROB	-	-	42.0 213.0	0.011 0.010	1.000	0.011 0.010	1.000	11	\$18.00 \$1.00	Homes with chest freezers Homes with dehumidifiers	31.8%	12.5% 85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	12	\$1.00	Homes with denumidifiers Homes with electric clothes dryer	70.6%	85.3% 95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat	SEA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	34.5%	25.3%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	62.7%	25.3%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	20.4%	51.5%
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	26.7%	51.5%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	44.3%	12.1%
337	Energy Star Exhaust Fans	SFA	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
338 339	Energy Star Residential Whole House Fans Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	Retrofit	-	-	1205.0	0.000	1.000	0.000	1.000	15	\$348.00 \$120.00	Homes with residential whole house fans Homes with secondary refrigerators	3.6% 5.7%	9.1% 2.9%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	5.7%	2.9%
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with secondary tengeneous Homes with top mount freezers without door ice	66.3%	20.8%
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	5.0%	20.8%
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	10.3%	20.8%
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	0.0%	20.8%
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	25.9%	20.8%
346 347	Energy Star upright with manual defrost	MF	ROB ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00 \$72.00	Homes with upright, manual defrost freezers	10.2%	12.5%
347	Energy Star upright with automatic defrost Energy Star chest freezer	MF	ROB	-	-	67.0	0.011 0.011	1.000	0.011 0.011	1.000	11 11	\$/2.00 \$18.00	Homes with upright, automatic defrost freezers Homes with chest freezers	9.0%	12.5%
340	Energy Star chest freezer Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	7.2%	85.3%
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	58.6%	95.1%
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	47.4%	25.3%
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	34.7%	25.3%
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	19.7%	51.5%
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	33.0 98.0	0.023	1.000	0.023	1.000 0.580	11 10	\$12.00 \$50.00	Homes with dishwasher and gas heat	14.4% 59.9%	51.5% 12.1%
355 356	ENERGY STAR Room Air Conditioners Energy Star Exhaust Fans	MF	ROB ROB	-	-	98.0 2.0	0.102	1.000	0.102	0.580	10	\$50.00 \$25.00	MF homes with room AC Homes with exhaust fans	59.9%	12.1%
355	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	229.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans Homes with residential whole house fans	10.4%	9.1%
400	Electronics	1411	Actiont	-	-	227.0	0.000	1.000	0.000	1.000		\$210.00	romes wan residential whole nouse rans	10.470	7.170
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	101.9%	49.0%
402	ENERGY STAR Copier	SFD	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	9.2%	82.7%
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	8.4%	6.0%
404	ENERGY STAR Monitor	SFD	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	48.5%	72.3%
405	ENERGY STAR Multifunction ENERGY STAR Printer	SFD	ROB	-	-	78.0	0.011 0.004	1.000	0.011 0.004	1.000	6	\$1.00 \$1.00	Homes with a multifunction printer	36.8%	63.3% 69.7%
406 407	ENERGY STAR Printer >50 in television	SFD	ROB	-	-	26.0 481.0	0.004	1.000	0.004 0.074	0.280	5	\$1.00 \$1.00	Homes with a printer Homes with a television	36.8% 43.1%	69.7% 58.0%
	<50 in television	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	45.1%	58.0%
408								0.200		0.000		41.00		1.57.770	5.0%
408 409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%

	Assumptions - Penelec	Home					Per Unit		Per Unit						
Measure	Measure Name	Type (SFA, SFD,	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Winter Demand Savings	Winter CF	Summer Demand Savings	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
	ENTER OV CEAR C	MF)	BOB	(KWII)			(kW)	1.000	(kW)	4.000		<b>6</b> (0.00	FT	6.00/	0.0.5%
411 412	ENERGY STAR Copier ENERGY STAR Fax Machine	SFA SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00 \$60.00	Homes with a copier	6.3% 8.4%	82.7% 6.0%
412	ENERGY STAR Pax Machine	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a fax machine Homes with a desktop computer	40.8%	72.3%
414	ENERGY STAR Multifunction	SFA	ROB	-	-	78.0	0.002	1.000	0.002	1.000	6	\$1.00	Homes with a multifunction printer	25.0%	63.3%
415	ENERGY STAR Printer	SFA	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	25.0%	69.7%
416	>50 in television	SFA	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	44.3%	58.0%
417	<50 in television	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	142.9%	58.0%
418	Smart Strip Plug Outlets ENERGY STAR Computer	SFA	Retrofit	-	-	124.0 77.0	0.020	0.500	0.020	0.500	5	\$15.00 \$1.00	Homes with Powerstrips	100.0%	5.0% 49.0%
419 420	ENERGY STAR Computer	MF	ROB	-	-	73.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer Homes with a conjer	/8.4% 6.0%	49.0%
420	ENERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.010	1.000	0.010	1.000	4	\$60.00	Homes with a fax machine	8.4%	6.0%
422	ENERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	37.3%	72.3%
423	ENERGY STAR Multifunction	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	23.9%	63.3%
424	ENERGY STAR Printer	MF	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	23.9%	69.7%
425	>50 in television <50 in television	MF	ROB ROB	-	-	481.0 136.0	0.074 0.263	0.280	0.074	0.280	15	\$1.00 \$1.00	Homes with a television	19.8%	58.0%
426	Smart Strip Plug Outlets	MF	ROB	-	-	136.0	0.265	0.280	0.265	0.280	5	\$1.00	Homes with a television Homes with Powerstrips	121.0%	5.0%
500	Pool	NII.	Renom	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	fiones with Powerships	100.078	5.070
501	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	1.9%	10.0%
502	Variable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	1.9%	10.0%
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	0.0%	10.0%
504	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	0.0%	10.0%
505 506	High Efficiency Two-Speed Pool Pump Variable Speed Pool Pumps	MF MF	ROB ROB	-	-	530.0 918.0	1.129 0.621	0.000	1.129 0.621	0.270	10	\$175.00 \$750.00	Homes with a pool Homes with a pool	1.8%	10.0%
600	HVAC (Envelope)	МГ	ROB	-	-	918.0	0.021	0.000	0.021	0.270	10	\$750.00	riomes with a pool	1.670	10.076
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	16289	13.04%	2124.0	0.000	0.700	0.000	0.700	15	\$744.66	Detached SF existing homes with electric heat and Central AC	1.6%	69.5%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	20775	21.59%	4486.0	2.300	0.700	0.600	0.700	25	\$1,640.03	Detached SF existing homes with electric heat and Central AC	1.6%	99.3%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	20775	26.91%	5591.0	2.800	0.700	0.700	0.700	25	\$2,180.79	Detached SF existing homes with electric heat and Central AC	1.6%	99.3%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	20775	28.02%	5821.0	2.900	0.700	0.700	0.700	25	\$2,819.07	Detached SF existing homes with electric heat and Central AC	1.6%	99.3%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	16289	8.20%	1335.0	0.600	0.700	0.100	0.700	25	\$2,180.79	Detached SF existing homes with electric heat and Central AC	1.6%	29.2%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	25765	32.62%	8404.0	4.800	0.700	0.400	0.700	25	\$2,525.68	Detached SF existing homes with electric heat and Central AC	1.6%	88.8%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	25765	36.78%	9476.0	5.400	0.700	0.500	0.700	25	\$3,202.85	Detached SF existing homes with electric heat and Central AC	1.6%	88.8%
608	ENERGY STAR Windows	SFD	ROB	16289	8.30%	1352.0	0.700	0.700	0.000	0.700	20	\$292.20	Detached SF existing homes with electric heat and Central AC	1.6%	85.6%
609 610	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	17475	5.93% 6.79%	1036.0 1186.0	0.000	0.700	0.000	0.700	25 25	\$1,223.37 \$1,551.38	Detached SF existing homes with electric heat and Central AC	1.6%	24.1% 24.1%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit Retrofit	1/4/5	6./9%	1874.0	3.700	0.700	0.000	0.700	14	\$1,551.56	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with electric heat and Central AC	1.6%	24.1% 64.0%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1792	-2.46%	-44.0	0.000	0.700	0.000	0.700	15	\$744.66	Detached SF existing homes with con-electric heat and Central AC	26.5%	69.5%
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	2047	12.46%	255.0	0.000	0.700	0.500	0.700	25	\$1,640.03	Detached SF existing homes with non-electric heat and Central AC	26.5%	99.3%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	2047	15.24%	312.0	0.000	0.700	0.700	0.700	25	\$2,180.79	Detached SF existing homes with non-electric heat and Central AC	26.5%	99.3%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	2047	15.83%	324.0	0.000	0.700	0.700	0.700	25	\$2,819.07	Detached SF existing homes with non-electric heat and Central AC	26.5%	99.3%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1792	3.85%	69.0	0.000	0.700	0.200	0.700	25	\$2,180.79	Detached SF existing homes with non-electric heat and Central AC	26.5%	29.2%
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1997	9.11%	182.0	0.000	0.700	0.000	0.700	25	\$2,525.68	Detached SF existing homes with non-electric heat and Central AC	26.5%	88.8%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1997	10.27%	205.0	0.000	0.700	0.000	0.700	25	\$3,202.85	Detached SF existing homes with non-electric heat and Central AC	26.5%	88.8%
619	ENERGY STAR Windows	SFD	ROB	1792	-3.74%	-67.0 -113.0	0.000	0.700	0.000	0.700	20 25	\$292.20	Detached SF existing homes with non-electric heat and Central AC	26.5%	85.6%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1663	-6.79%	-113.0	0.000	0.700	0.000	0.700	25	\$1,223.37 \$1,551.38	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	26.5%	24.1%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1792	10.27%	184.0	0.000	0.700	0.000	0.700	14		Detached SF existing homes with non-electric heat and Central AC	26.5%	64.0%
623		SFD	Retrofit	1553	-2.45%	-38.0	0.000	0.700	0.100	0.580	14	\$744.66	Detached SF existing homes with non-electric heat and contral AC	42.8%	69.5%
	Air Sealing (cost per sf of living space for a typical single-family home) Attic Insulation P() to P10 (Cost Per Senere Foot installed)											-			07.007.0
624 625	Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit Retrofit	1853 1853	16.19% 19.54%	300.0 362.0	0.000	0.700	0.600	0.580	25 25	\$1,640.03 \$2,180.79	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	42.8% 42.8%	99.3% 99.3%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed) Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1853	19.54% 20.18%	362.0	0.000	0.700	0.700	0.580	25	\$2,180.79	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	42.8%	99.3%
620	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1553	4.76%	74.0	0.000	0.700	0.200	0.580	25	\$2,180.79	Detached SF existing homes with non-electric heat and room AC	42.8%	29.2%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1776	11.15%	198.0	0.000	0.700	0.400	0.580	25	\$2,525.68	Detached SF existing homes with non-electric heat and room AC	42.8%	88.8%
	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1776	12.56%	223.0	0.000	0.700	0.500	0.580	25	\$3,202.85	Detached SF existing homes with non-electric heat and room AC	42.8%	88.8%
629	ENERGY STAR Windows	SFD	ROB	1553	-5.02%	-78.0	0.000	0.700	0.000	0.580	20	\$292.20	Detached SF existing homes with non-electric heat and room AC	42.8%	85.6%
630		0.000				-125.0	0.000	0.700	0.000	0.580	25	\$1,223.37	Detached SF existing homes with non-electric heat and room AC	42.8%	24.1%
630 631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1410	-8.87%			0.700	0.000	0.590				43.007	
630	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD SFD SFD	Retrofit Retrofit	1410 1410 1553	-0.0770 -10.14% 1.42%	-143.0	0.000	0.700 0.700	0.000	0.580	25 14	\$1,551.38 \$497.62	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	42.8%	64.0%
630 631 632 633	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD SFD	Retrofit Retrofit	1410 1553	-10.14% 1.42%	-143.0	0.000	0.700			14		Detached SF existing homes with non-electric heat and room AC	42.8%	64.0%
630 631 632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1410	-10.14%	-143.0 22.0	0.000	0.700	-0.100	0.580	20	\$497.62		1-1071	2 (12 / 2
630 631 632 633 634	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD SFD SFA	Retrofit Retrofit Retrofit	1410 1553 11725	-10.14% 1.42% 14.48%	-143.0 22.0 1698.0	0.000 0.000 0.000	0.700	-0.100	0.580	14 15	\$497.62 \$533.40	Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with electric heat and Central AC	42.8% 10.0%	64.0% 69.5%
630 631 632 633 634 635	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per sf of living space for a typical single-family home) Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD SFD SFA SFA	Retrofit Retrofit Retrofit	1410 1553 11725 1909	-10.14% 1.42% 14.48% 191.20%	-143.0 22.0 1698.0 3650.0 4551.0 4737.0	0.000 0.000 0.000 2.000 2.400 2.500	0.700 0.700 0.700	-0.100 0.000 0.500 0.600 0.600	0.580 0.700 0.700	14 15 25 25 25	\$497.62 \$533.40 \$1,174.75	Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	42.8% 10.0% 10.0%	64.0% 69.5% 99.3%
630 631 632 633 634 635 636	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per s fof living space for a typical single-family home) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD SFD SFA SFA SFA	Retrofit Retrofit Retrofit Retrofit	1410 1553 11725 1909 1909	-10.14% 1.42% 14.48% 191.20% 238.40%	-143.0 22.0 1698.0 3650.0 4551.0	0.000 0.000 0.000 2.000 2.400	0.700 0.700 0.700 0.700	-0.100 0.000 0.500 0.600	0.580 0.700 0.700 0.700	14 15 25 25	\$497.62 \$533.40 \$1,174.75 \$1,562.10	Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	42.8% 10.0% 10.0% 10.0%	64.0% 69.5% 99.3% 99.3%

Measure	Assumptions - Penelec Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	/Full Cost	Measure/ End Use Description	Base Saturation	
641 642	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	ROB Retrofit	11725	11.07% 6.93%	1298.0 883.0	0.600	0.700	0.000	0.700	20	\$254.70 \$876.30	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	10.0%	85.6% 24.1%
					0.7072				0.000			+0.000			
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	12735	7.93%	1010.0	0.000	0.700	0.000	0.700	25	\$1,111.25	Attached SF existing homes with electric heat and Central AC	10.0%	24.1%
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	11725	11.72%	1374.0	2.400	0.700	0.100	0.700	14	\$372.26	Attached SF existing homes with electric heat and Central AC	10.0%	64.0%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1654	-0.73%	-12.0	0.000	0.700	0.000	0.700	15	\$533.40	Attached SF existing homes with non-electric heat and Central AC	18.6%	69.5%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1909	13.36%	255.0	0.000	0.700	0.500	0.700	25	\$1,174.75	Attached SF existing homes with non-electric heat and Central AC	18.6%	99.3%
647 648	Attic Insulation- R0-R38 (Cost Per Square Foot installed) Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA SFA	Retrofit Retrofit	1909 1909	16.71% 17.34%	319.0 331.0	0.000	0.700	0.600	0.700	25 25	\$1,562.10 \$2.019.30	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	18.6%	99.3% 99.3%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1654	4.59%	76.0	0.000	0.700	0.100	0.700	25	\$1,562.10	Attached SF existing homes with non-electric heat and Central AC	18.6%	29.2%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1773	6.09%	108.0	0.000	0.700	0.100	0.700	25	\$2,131.00	Attached SF existing homes with non-electric heat and Central AC	18.6%	88.8%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1773	6.71%	119.0	0.000	0.700	0.200	0.700	25	\$2,702.35	Attached SF existing homes with non-electric heat and Central AC	18.6%	88.8%
652	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	ROB Retrofit	1654 1563	-2.48%	-41.0	0.000	0.700	0.000	0.700	20 25	\$254.70 \$876.30	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	18.6%	85.6% 24.1%
654	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1563	-4.99%	-/8.0	0.000	0.700	0.000	0.700	25	\$1.111.25	Attached SF existing homes with non-electric heat and Central AC	18.6%	24.1%
655 656	HVAC Duct Sealing (Cost per typical single-family home)	SFA SFA	Retrofit	1654 1527	-0.92%	-14.0	0.000	0.700	0.100	0.700	14	\$372.26 \$533.40	Attached SF existing homes with non-electric heat and Central AC	18.6% 37.1%	64.0% 69.5%
	Air Sealing (cost per sf of living space for a typical single-family home)		Retrofit				0.000						Attached SF existing homes with non-electric heat and room AC		
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1814	15.82%	287.0	0.000	0.700	0.500	0.580	25	\$1,174.75	Attached SF existing homes with non-electric heat and room AC	37.1%	99.3%
658 659	Attic Insulation- R0-R38 (Cost Per Square Foot installed) Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA SFA	Retrofit Retrofit	1814 1814	19.57% 20.34%	355.0 369.0	0.000	0.700	0.600	0.580	25 25	\$1,562.10 \$2,019.30	Attached SF existing homes with non-electric heat and room AC Attached SF existing homes with non-electric heat and room AC	37.1%	99.3% 99.3%
660	Attic Insulation R0 to R00 (Cost Per Square Foot installed)	SFA	Retrofit	1527	5.37%	82.0	0.000	0.700	0.100	0.580	25	\$1,562.10	Attached SF existing homes with non-electric heat and room AC	37.1%	29.2%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1658	7.00%	116.0	0.000	0.700	0.200	0.580	25	\$2,131.00	Attached SF existing homes with non-electric heat and room AC	37.1%	88.8%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1658	7.90%	131.0	0.000	0.700	0.200	0.580	25	\$2,702.35	Attached SF existing homes with non-electric heat and room AC	37.1%	88.8%
663	ENERGY STAR Windows	SFA	ROB	1527	-2.36%	-36.0	0.000	0.700	0.000	0.580	20	\$254.70	Attached SF existing homes with non-electric heat and room AC	37.1%	85.6%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1417	-6.85%	-97.0	0.000	0.700	0.000	0.580	25	\$876.30	Attached SF existing homes with non-electric heat and room AC	37.1%	24.1%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1417	-7.76%	-110.0	0.000	0.700	0.000	0.580	25	\$1,111.25	Attached SF existing homes with non-electric heat and room AC	37.1%	24.1%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1527 3981	4.13%	63.0	0.000	0.700	0.000	0.580	14	\$372.26 \$406.98	Attached SF existing homes with non-electric heat and room AC	37.1%	64.0%
667 668	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit Retrofit	3981 4378	18./1% 8.06%	745.0 353.0	0.000	0.700	0.100	0.700	15 25	\$406.98 \$1,229.44	MF existing homes with electric heat and central AC MF existing homes with electric heat and central AC	6.0%	69.5% 88.8%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	4378	9.07%	397.0	0.300	0.700	0.000	0.700	25	\$1,559.08	MF existing homes with electric heat and central AC	6.0%	88.8%
670	ENERGY STAR Windows	MF	ROB	3981	24.62%	980.0	0.600	0.700	0.100	0.700	20	\$250.65	MF existing homes with electric heat and central AC	6.0%	85.6%
671 672	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	3981 778	9.12%	363.0 -19.0	1.300 0.000	0.700	0.100	0.700	14 15	\$297.25 \$406.98	MF existing homes with electric heat and central AC	6.0%	64.0% 69.5%
672	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit Retrofit	774	-2.44%	-19.0	0.000	0.700	0.100	0.700	25	\$406.98 \$1,229.44	MF existing homes with non-electric heat and central AC MF existing homes with non-electric heat and central AC	27.5%	69.5% 88.8%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	774	-0.52%	-4.0	0.000	0.700	0.000	0.700	25	\$1,559.08	MF existing homes with non-electric heat and central AC	27.5%	88.8%
675	ENERGY STAR Windows	MF	ROB	778	-9.00%	-70.0	0.000	0.700	0.100	0.700	20	\$250.65	MF existing homes with non-electric heat and central AC	27.5%	85.6%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	778	8.48%	66.0	0.000	0.700	0.100	0.700	14	\$297.25	MF existing homes with non-electric heat and central AC	27.5%	64.0%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	850	-2.71%	-23.0	0.000	0.700	0.100	0.580	15	\$406.98	MF existing homes with non-electric heat and room AC	44.3%	69.5%
678 679	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	846 846	-0.47%	-4.0 -4.0	0.000	0.700	0.000	0.580	25 25	\$1,229.44 \$1,559.08	MF existing homes with non-electric heat and room AC MF existing homes with non-electric heat and room AC	44.3% 44.3%	88.8% 88.8%
680	ENERGY STAR Windows	MF	ROB	850	-9.18%	-78.0	0.000	0.700	0.100	0.580	20	\$250.65	MF existing nomes with non-electric heat and room AC	44.3%	85.6%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	850	8.59%	73.0	0.000	0.700	0.000	0.580	14	\$297.25	MF existing homes with non-electric heat and room AC	44.3%	64.0%
700	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	16289	1.91%	311.0	0.000	1.000	0.000	1.000	15	\$25.00	Detached SF homes with heat pumps	2.1%	56.5%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	16289	9.43%	1536.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	2.1%	76.5%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	13288	4.99%	663.0	0.000	0.700	0.100	0.700	12	\$822.00	Detached SF homes with heat pumps	2.1%	26.9%
704 705	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD SFD	ROB ROB	13288 17212	6.81% 7.31%	905.0 1259.0	0.000	0.700	0.100	0.700	12	\$1,644.00 \$11,300.00	Detached SF homes with heat pumps	2.1%	26.9%
705 706	GSHP w/ Desuperheater Ductless Mini-Split Heat Pumps	SFD	ROB	17212	7.31%	1259.0 4091.0	0.000	0.700	0.500	0.700	30 15	\$11,300.00 \$1,200.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	2.1%	26.9%
706	Ground Source Heat Pumps (GSHP)	SFD	ROB	13288	30.79% 4.90%	4091.0	0.000	0.700	0.800	0.700	30	\$1,200.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	2.1%	26.9%
707	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	13288	4.90%	147.0	0.000	0.700	0.300	0.700	14	\$1,333.00	Detached SF nomes with near pumps Detached SF existing homes with Central AC	28.8%	26.9%
709	Central AC (Equipment Only) - SEER 15 to SEER 16 (3.5 tons)	SFD	ROB	1281	16.08%	206.0	0.000	0.000	0.000	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	28.8%	26.9%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	1792	9.99%	179.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	28.8%	87.2%
711	Furnace High Efficiency Fan	SFD	Retrofit	1792	24.89%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	92.3%	10.0%
712	Programmable Thermostat (CAC)	SFD	Retrofit	1792	1.73%	31.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	28.8%	56.5%
713	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Detached SF existing homes with non-electric furnace	92.3%	10.0%
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	Detached SF homes with room AC	48.1%	12.1%
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	353 11725	7.37%	26.0 172.0	0.000	0.000	0.000	0.580	4	\$65.00 \$25.00	Detached SF homes with room AC Attached SF existing homes with heat pump	48.1%	12.1% 56.5%
716	Programmable Thermostat (ASHP)	SEA	Retrofit												

Measure	Assumptions - Penelec Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	9579	5.03%	482.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	1.4%	26.9%
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	9579	6.89%	660.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	1.4%	26.9%
720	GSHP w/ Desuperheater	SFA	ROB	13504	4.78%	645.0	0.000	0.700	0.400	0.700	30	\$11,300.00	Attached SF existing homes with heat pump	1.4%	26.9%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	9579	24.76%	2372.0	4.800	0.700	0.500	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	1.4%	26.9%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	9579	0.93%	89.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	1.4%	26.9%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	1180	11.44%	135.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Attached SF homes with Central AC	30.0%	26.9%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	1180	16.10%	190.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Attached SF homes with Central AC	30.0%	26.9%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1654	10.16%	168.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	30.0%	87.2%
726	Furnace High Efficiency Fan	SFA	Retrofit	1654	26.96%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	84.9%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	1654	1.57%	26.0	0.000	0.000	0.000	0.700	15	\$25.00	Attached SF homes with Central AC	30.0%	56.5%
728	Furnace Whistle	SFA	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	84.9%	10.0%
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	Attached SF homes with room AC	44.3%	12.1%
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	Attached SF homes with room AC	44.3%	12.1%
731	Programmable Thermostat (ASHP)	MF	Retrofit	3981	1.53%	61.0	0.000	1.000	0.000	1.000	15	\$25.00	MF homes with heat pump	0.6%	56.5%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	3981	8.39%	334.0	0.000	0.700	0.000	0.700	7	\$100.00	MF homes with heat pump	0.6%	76.5%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	3288	4.90%	161.0	0.000	0.700	0.100	0.700	12	\$822.00	MF homes with heat pump	0.6%	26.9%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	3288	6.75%	222.0	0.000	0.700	0.100	0.700	12	\$1,644.00	MF homes with heat pump	0.6%	26.9%
735	GSHP w/ Desuperheater	MF	ROB	6533	-8.95%	-585.0	0.000	0.700	0.200	0.700	- 30	\$11,300.00	MF homes with heat pump	0.6%	26.9%
736	Ductless Mini-Split Heat Pumps	MF	ROB	3288	21.08%	693.0	1.800	0.700	0.200	0.700	15	\$1,200.00	MF homes with heat pump	0.6%	26.9%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	3288	-26.67%	-877.0	0.000	0.700	0.100	0.700	- 30	\$10,700.00	MF homes with heat pump	0.6%	26.9%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	556	11.51%	64.0	0.000	0.000	0.100	0.700	14	\$1,333.00	MF homes with Central AC	39.5%	26.9%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	556	16.19%	90.0	0.000	0.000	0.100	0.700	14	\$2,407.00	MF homes with Central AC	39.5%	26.9%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	778	10.03%	78.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	39.5%	87.2%
741	Furnace High Efficiency Fan	MF	Retrofit	778	57.33%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	82.1%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	778	1.54%	12.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	39.5%	56.5%
743	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	82.1%	10.0%
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	MF homes with room AC	59.9%	12.1%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	MF homes with room AC	59.9%	12.1%
800	Whole House	000	n 6	0.000		4 4 5 0 5	1.007	0.500	4.007	0.500		<b>A1</b> 10 00			
801	Direct (Real Time) Feedback	SFD	Retrofit	26987	6.15%	1659.7	1.337	0.700	1.337	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	1.6%	2.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	26987	2.23%	601.8	0.485	0.700	0.485	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	1.6%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	7283	6.15%	447.9	0.361	0.700	0.361	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	26.5%	2.0%
804	Indirect Feedback (O-Power)	SFD	Retrofit	7283	2.23%	162.4	0.131	0.700	0.131	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	26.5%	2.0%
805	Direct (Real Time) Feedback	SFD	Retrofit	7044 7044	6.15%	433.2 157.1	0.349	0.700	0.349	0.580	3	\$140.00 \$22.50	Detached SF existing homes with non-electric heat and room AC	42.8%	2.0%
806	Indirect Feedback	SFD	Retrofit		2.23%				0=.	0.000	2		Detached SF existing homes with non-electric heat and room AC	42.8%	2.0%
807	Direct (Real Time) Feedback	SFA	Retrofit	21074	6.15%	1296.1	1.044	0.700	1.044	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	10.0%	2.0%
808 809	Indirect Feedback (O-Power)	SFA SFA	Retrofit	21074 5795	2.23% 6.15%	470.0 356.4	0.379 0.287	0.700	0.379 0.287	0.700	2	\$22.50 \$140.00	Attached SF existing homes with electric heat and Central AC	10.0%	2.0%
809	Direct (Real Time) Feedback Indirect Feedback (O-Power)	SFA	Retrofit	5795	2.23%	356.4	0.287	0.700	0.287	0.700	2	\$140.00 \$22.50	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	18.6%	2.0%
810	Direct (Real Time) Feedback	SFA	Retrofit	5668	6.15%	348.6	0.104	0.700	0.104	0.700	2	\$22.50 \$140.00	Attached SF existing homes with non-electric heat and central AC	37.1%	2.0%
811 812	Indirect Feedback (O-Power)	SFA	Retrofit	5668	6.15% 2.23%	126.4	0.281	0.700	0.281	0.580	2	\$140.00 \$22.50	Attached SF existing homes with non-electric heat and room AC Attached SF existing homes with non-electric heat and room AC	37.1%	2.0%
813	Direct (Real Time) Feedback	MF	Retrofit	11842	6.15%	728.3	0.102	0.700	0.102	0.380	3	\$22.50	MF existing homes with electric heat and central AC	6.0%	2.0%
813	Indirect Feedback (O-Power)	MF	Retrofit	11842	2.23%	264.1	0.213	0.700	0.387	0.700	2	\$22.50	MF existing homes with electric heat and central AC	6.0%	2.0%
815	Direct (Real Time) Feedback	ME	Retrofit	4111	6.15%	252.8	0.213	0.700	0.213	0.700	3	\$140.00	MF existing homes with electric field and central AC	57.5%	2.0%
815	Indirect Feedback (O-Power)	ME	Retrofit	4111	2.23%	91.7	0.074	0.700	0.074	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	57.5%	2.0%
817	Direct (Real Time) Feedback	MF	Retrofit	4183	6.15%	257.3	0.207	0.700	0.207	0.580	3	\$140.00	MF existing homes with non-electric heat and central AC	44.3%	2.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	4183	2.23%	93.3	0.075	0.700	0.075	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	44.3%	2.0%
900	New Construction		1											1.1.570	2.073
901	Residential New Construction-Tier 1	SFD	NC	19068	15.00%	2860.2	1.245	0.700	0.480	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	26.1%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	19068	30.00%	5720.4	2.490	0.700	0.960	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	26.1%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	7865	15.00%	1179.8	0.090	0.700	0.360	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central AC	63.0%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	7865	30.00%	2359.5	0.180	0.700	0.720	0.700	15	\$5,628.00	New construction detached SF homes w/ non-electric heat and Central AC	63.0%	0.0%
905	Residential New Construction Tier 1	MF	NC	11035	15.00%	1655.3	0.510	0.700	0.300	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	26.1%	0.0%
	Residential New Construction Tier 2	MF	NC	11035	30.00%	3310.5	1.020	0.700	0.600	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	26.1%	0.0%
906 907	Residential New Construction Tier 1	MF	NC	4523	15.00%	678.5	0.060	0.700	0.195	0.700	15	\$1.876.00	New construction MF homes with non-electric heat and Central AC	63.0%	

Measure	Assumptions Sources - Penelec														
Measure	Measure Name Water Henine End Use	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings		Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100		SFD	ROB			PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA TRM	GDS research	East Eastern	PA Baseline	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 house the JW depend import for this measure was abach as a minimized
	Efficient Electric Water Heaters- 0.93 Energy Factor			-	-			Note 1 *See CF		Note 1 *See CF			First Energy		<ol> <li>because the kW demand impact for this measure was already on a coincident peak basis.</li> </ol>
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1 *See CF	PA TRM	*See CF Note 1 *See CF	PA TRM		First Energy	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1 *See CF	PA TRM	*See CF Note 1 *See CF	PA TRM	PPL (email)	First Energy	PA Baseline	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	GDS estimate	First Energy	PA Baseline	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3 costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	MID-ATL TRM	First Energy First Energy /	PA Baseline	fr/home 1.6 eligible showerheads per home is assumed from PA TRM and is factored
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	*See CF *See CF	PA TRM	Google	PA TRM First Energy /	PA Baseline	into base saturation calculation 3.5 eligible faucets per homes is assumed from PA TRM and is factored into
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	Note 1 OHIO	PA TRM	Note 1 OHIO	PA TRM	MID-ATL TRM	Pirst Energy / PA TRM	PA Baseline	5.5 eligible faucets per nomes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	TRM	PA TRM	TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	1	1	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	1	1	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
200 201	Liehting Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	GDS estimate	PA TRM	GDS estimate	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	GDS estimate	PA TRM	GDS estimate	PA TRM	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	

Measure 1	Assumptions Sources - Penelec														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM PA TRM /	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM GDS	PA TRM / GDS calculation	PA TRM GDS	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	estimate	PA TRM	estimate	PA TRM	Lowe's	GDS Estimate	Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupaney-sensor/where-to- buy/Ar05028E5A37AB853530112q=Residential+Occupancy+Sensors&Ipf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-1be-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A761028E5A37A188335011?q=Residential+Occupancy+Sensors&lpf=0&d pq=Residential%2Doccupancy%2DSensors&IORAI=CPCA&lppc=16 http://www.bing.com/shopping/17180-1bu-decora-passive-infrared-wall-switch- http://www.bing.com/shopping/17180-1bu-decora-passive-infrared-wall-switch- sensors-first-passive-infrared-switch- sensors-first-passive-infrared-switch- sensors-first-passive-infrared-switch- sensors-first-passive-infrared-switch- switch-switch- sensors-first-passive-infrared-switch- switch-switch-switch- switch-switch-switch-switch-switch- switch-switch
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.mg.com/subpmg/proof-nw-decors-passive-initiated-wain-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	GDS estimate	PA TRM	GDS estimate	PA TRM	Amazon.com	PA Baseline	PA Baseline	
218	LED Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	GDS	PA TRM	GDS	PA TRM	Lowe's	PA Baseline	PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report CT	GDS calculation	PA TRM	PA TRM MID-	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM	MID-ATL TRM	Lighting CF Report	MID-ATL TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM GDS	PA TRM / GDS calculation	PA TRM GDS	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	estimate	PA TRM	estimate	PA TRM	Lowe's	GDS Estimate	Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whree-to- buy/A76D28E5A37AB85350117q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37A1883535011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E55A37AB85355011?q=Residential+Occupancy+Sensors&Ipf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	GDS estimate	PA TRM	GDS estimate	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	GDS estimate	PA TRM	GDS	PA TRM	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	

Measure	Assumptions Sources - Penelec														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM MID-	Home Depot	GDS Estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	Lighting CF Report	MID-ATL TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM GDS	PA TRM	PA TRM GDS	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
242 243	ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL	MF	ROB Retrofit	-	-	PA TRM PA TRM	PA TRM PA TRM	CT Lighting CF Report	PA TRM PA TRM	PA TRM	PA TRM	Lowe's Bing.com	GDS Estimate PA Baseline	EnergyStar Market Penetration Summary EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Resider #1C904/emC91a1#-0ccupancy+Sensor&dpf=0&d
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	pg=Residential%2bOccuparcf%2bSensors&FORAl=CPCA&lppc=16 http://www.biag.com/shopping/pt180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/AT0128E15A37AB8535011?q=Residential+Occupancy+Sensors&Pf0=08d pq=Residential%2bOccupancy%2bSensors&Pf0RM=CPCA&lppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76128E55A37AB853530117q=Residential+Occupancy+Sensors&Ppf=0&0 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
300	Appliances Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM Home	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Depot/Lowe's	First Energy, PA Baseline First Energy, PA	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's Home	Baseline First Energy, PA	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM OHIO	Depot/Lowe's EnergyStar	Baseline	PA Baseline EnergyStar Market	
311 312	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	TRM PA TRM	Calculator Home Depot	First Energy First Energy	Penetration Summary PECO 2011	
313	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	First Energy First Energy	PA Baseline PA Baseline	
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/scarch2q=whole+house+fan&form=QBRE&ea q=whole+house+fan&aid=&ect=&eqs=n&pq=whole+house+fan&sp=&ert=Com pletions&tk=&espv=&esl=E≻=&est=&AAAAAAAAA#x0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis) PECO (email	First Energy	PA Baseline	
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	

	ssumptions Sources - Penelec		DOD						D						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
331 332	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	SFA SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	First Energy First Energy	PECO 2011 PA Baseline	
333 334	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB ROB	-	-	PA TRM EnergyStar	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM EnergyStar	First Energy	PA Baseline PA Baseline	
	5			-	-	Calculator EnergyStar						Calculator EnergyStar	First Energy		
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	Calculator EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator EnergyStar	First Energy	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA SFA	ROB ROB	-	-	Calculator Codes and Standards Enhancement	PA TRM Vermont TRM	PA TRM *See CF Note 1	PA TRM Vermont TRM	PA TRM *See CF Note 1	PA TRM Vermont TRM	Calculator EnergyStar 2011 Savings and Costs report	First Energy GDS Estimate	PA Baseline GDS Estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	Initiative PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM		WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ect=&qs=n&pq=whole+house+fan&sp=&rt=Com pleions&tk=&spv=&sd=E≻=&sat=AAAAAAA#s0y0
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy First Energy, PA	PA Baseline	
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
348	Energy Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
350 351	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM		First Energy First Energy	PECO 2011 PA Baseline	
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM		First Energy	PA Baseline	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	Calculator EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator EnergyStar	First Energy	PA Baseline	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	Calculator EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator EnergyStar	First Energy	PA Baseline	
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator	First Energy	PA Baseline	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&ea q=whole+house+fan&iad=&cct=&cqs=n&pq=whole+house+fan&sp=&crt=Com pletions&rk=&spv=&sl=E≻=&sst=*=AAAAAAA#x0y0
400 401	Electronics ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-	First Energy	EnergyStar Market	Savings - PA TRM p.122
												Cited EnergyStar	5	Penetration Summary EnergyStar Market	
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	Penetration Summary	

Measure /	Assumptions Sources - Penelec	_			_			_			_		_		
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL	EnergyStar Market Penetration Summary	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penelec, GDS estimate	EnergyStar Market Penetration Summary	
407	>50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
408	<50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	First Energy	EnergyStar Market Penetration Summary	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL	EnergyStar Market Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penelec, GDS estimate	EnergyStar Market Penetration Summary	
416	>50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
417	<50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	First Energy	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	
423	ENERGY STAR Multifunction	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL	EnergyStar Market Penetration Summary	
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penelec, GDS estimate	EnergyStar Market Penetration Summary	
425	>50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
426	<50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
500 501	Pool High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings- PA and Mid Atlantic TRMs
502	Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
504	Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{\mbox{\scriptsize ss}}$ and $kW_{\mbox{\scriptsize VFD}}$ parameters taken from Ohio TRM
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
600	INAC (Envelope) Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq fr (from Navigant) multiplied by square footage estimate
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation

Measure A	Assumptions Sources - Penelec														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate; ** wall insulation = area of walls - area of windows * price per sq ft
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate		RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	DEER database	First Energy	PA Baseline	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate

Aeasure /	Assumptions Sources - Penelec				_			_		_	_				
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
630	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
645	Air Scaling (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate

Measure A	Assumptions Sources - Penelec						1		1			1			
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Nores
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
670	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
671	HVAC Duct Scaling (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	
675	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
680	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage from West Penn Power

Measure	Assumptions Sources - Penelec										-				
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
700	HVAC (Equipment/Controls)							*See CF		*See CF					
701	Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate RemRate	-	REMRate RemRate	REMRate/TRM RemRate	Note 1 PA TRM	REMRate/TRM RemRate	Note 1 PA TRM	PA TRM PA TRM	Home Depot Home Depot	First Energy First Energy	PA Baseline PA Baseline	
702	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
706	Ductless Mini-Split Heat Pumps	SFD		RemRate	-	REMRate	REMRate	PA TRM	REMRate		PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	First Energy	PA Baseline	per ton) plus \$250 premium for desuperheater cost source: http://www.stacenengy.org/Closing%20Reports/Strategies%20tro%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
707	Ground Source Heat Pumps (GSHP) Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)		ROB	RemRate	-	REMRate	REMRate	PA TRM PA TRM	REMRate REMRate		PA TRM PA TRM		First Energy First Energy	PA Baseline PA Baseline	
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
710	HVAC Tune Up (Cooling Season Only Tune Up) Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	REMRate PA TRM	REMRate PA TRM	PA TRM *See CF Note 1	REMRate PA TRM	PA TRM *See CF Note 1	PA TRM MID- ATL TRM	Home Depot MID-ATL TRM	First Energy First Energy	PA Baseline GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS	REMRate/TRM	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS	First Energy	First Energy	PA Baseline	
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
717	Air Source Heat Pump (Maintenance)	SFA		RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
720 721 722	GSHP w/ Desuperheater Duetless Mini-Split Heat Pumps Ground Source Heat Pumps (GSHP)	SFA SFA		RemRate RemRate	-	REMRate REMRate	REMRate REMRate REMRate	PA TRM PA TRM PA TRM	REMRate REMRate	PA TRM PA TRM PA TRM	PA TRM PA TRM	prepared by Northeast Energy Efficiency Partnerships	First Energy	PA Baseline PA Baseline PA Baseline	per ton) plus \$250 premium for desuperheater cost source: http://www.stacenengy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
724 725	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons) HVAC Tune Up (Cooling Season Only Tune Up)	SFA SFA	ROB Retrofit		-	REMRate REMRate	REMRate REMRate	PA TRM PA TRM	REMRate REMRate	PA TRM PA TRM	PA TRM PA TRM	Navigant 2011 Home Depot	First Energy First Energy	PA Baseline PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
732	Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM REMRate/TRM	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM PA TRM	Home Depot DEER database	First Energy First Energy	PA Baseline PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (5.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM PA TRM	DEER database	First Energy	PA Baseline PA Baseline	source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PATRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	source http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
,35	and a second concerned		KOD	Activate		Readinate.	mannate/ 1 KW	1.1.1 Kist	AL AIRAIL	1.1.1103	THE TRA	· · · · (cman)	r not callengy	r paseine	per ton) plus \$250 premium for desuperheater

Measure	Assumptions Sources - Penelec														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	First Energy	PA Baseline	cost source: http://www.stacenengy.org/Closing%20Reports/Strategies%20tn%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
737	Ground Source Heat Pumps (GSHP) Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF MF	ROB	RemRate RemRate	-	REMRate REMRate	REMRate/TRM REMRate/TRM	PA TRM DA TRM	REMRate REMRate	PA TRM PA TRM	PA TRM PA TRM	PPL(email) Navigant 2011	First Energy First Energy	PA Baseline PA Baseline	
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM		REMRate	PA TRM	PA TRM MID-	Home Depot	First Energy	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM GDS	Amazon	First Energy	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	estimate	First Energy	First Energy	PA Baseline	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
800	Whole House					Vermont		GDS		GDS					
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PA TRM	Vermont TRM Communication	First Energy	GDS Estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	estimate GDS	Opower	estimate GDS	PA TRM	with Opower	First Energy	GDS Estimate	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	GDS	Vermont TRM	estimate	PA TRM	Vermont TRM Communication	First Energy	GDS Estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	GDS	Opower	GDS	PA TRM	with Opower	First Energy	GDS Estimate	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	Vermont TRM	estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate		Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate		Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
900 901	New Construction Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

Measure	Assumptions Sources - Penelec														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
905	Residential New Construction Tier 1	MF	NC	RemRate		RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS estimate	

Amazon: Retail prices derived from Amazon's website

Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report

Best Buy: Retail prices derived from Best Buy's website

Bing.com: Retail prices derived from bing.com search results Codes and Standards Enhancement Initiative

CT Lighting CF Report: Connecticut Lighting Coincidence Factor Report

DEER database: California database of Energy Efficiency Resources EnergyStar: government-backed website that helps protect the environment through superior energy efficiency

EnergyStar 2011 Savings and Costs

EnergyStar Calculator: service provided by EnergyStar to help estimate savings, useful life, and cost

EnergyStar Homes Report EnergyStar Penetration Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010)

First Energy: First Energy Saturation Study

First Long) - Tast Long) saturation (sub) (See measure-specific notes. GDS: GDS Associates Galeulation/Assumption. See measure-specific notes. GDS Estimate: Relied on industry experience and professional judgement due to lack of available primary research at the state/regional level. GDS Measure Life Report: SPWC and GDS showment of a set of measure life values for selected measures.

Google.com: Retail prices derived from Google Shopping

Home Depot: Retail prices derived from Home Depot's website LOWES: Retail prices derived from Lowe's website.

MID-ATL TRM: Mid-Atlantic Technical Reference Manual. Version 2.0

Navigant 2011: describes methods and results of ICS, commissioned by the EM&V Forum Research Subcommittee to update incremental costs for measures Opower: information used for calculating indirect feedback

Ohio TRM: Ohio Technical Reference Manual

PA Baseline: Pennsylvania Baseline study, conducted by GDS

PA TRM: Pennsylvania Technical Reference Manual PA TRM / Ohio TRM: Pennsylvania Technical Reference Manual / Ohio Technical Reference Manual

PECO 2011: data calculated from PECO's residential survey

PECO email: correspondence with representative(s) at PECO PPL email: correspondence with representative(s) at PPL

PPL Quarterly Report: documents progress and effectiveness of EE&C accomplishments for PPL through end of PY3, Quarter 2

REM/Rate Building Energy Modeling Software. Prototype homes were modeled based on average characteristics using the PECO Energy Baseline Study, February 2011 Stacenergy.org. Strategies to Increase Residential IVACE Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships The American Council for an Energy-Efficient Economy: Report on technical and policy issues relating to energy efficiency

Vermont TRM: Vermont Technical Reference Manual

Measure Measure #	Assumptions - Penn Power Measure Name Water Heating End Use	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
100	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	42.4%	25.4%
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	42.4%	25.4%
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	42.4%	25.4%
104	Solar Water Heaters	SFD	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	42.4%	0.0%
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	42.4%	0.0%
106	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	SFD	ROB Retrofit	-	-	2202.0 124.0	0.202	1.000	0.202	1.000	14	\$975.00 \$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	42.4%	0.0%
107	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.011	1.000	9	\$20.00	Homes w/Electric Water Heater	67.8%	65.9%
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	148.4%	40.8%
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	42.4%	11.8%
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	35.6%	25.4%
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	35.6%	25.4%
113	Efficient Electric Water Heaters- 0.95 Energy Factor Solar Water Heaters	SFA SFA	ROB ROB	-	-	217.0 2106.0	0.020	1.000	0.020	1.000	14 14	\$105.87 \$8,164.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	35.6%	25.4%
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	35.6%	0.0%
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	35.6%	0.0%
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	35.6%	19.8%
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	56.9%	65.9%
119	Low Flow Faucet Aerators Water Heater Tank Wrap	SFA SFA	Retrofit	-	-	61.0 97.0	0.056	1.000	0.056	1.000	12	\$2.00 \$50.00	Homes w/Electric Water Heater	124.5% 35.6%	40.8%
120	Water Heater 1 ank Wrap Efficient Electric Water Heaters- 0.93 Energy Factor	MF	Retrofit ROB	-	-	97.0	0.011 0.012	1.000	0.011 0.012	1.000	14	\$50.00	Homes w/Electric Water Heater	35.6% 61.0%	25.4%
121	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater Homes w/Electric Water Heater	61.0%	25.4%
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	61.0%	25.4%
124	Solar Water Heaters	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	61.0%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	61.0%	0.0%
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	61.0%	0.0%
127 128	Electric Water Heater Pipe Insulation Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	124.0 461.0	0.011	1.000	0.011	1.000	13	\$18.00 \$20.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	61.0% 97.6%	19.8%
128	Low Flow Snowerneads- 1.5 GPM Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.042	1.000	0.042	1.000	12	\$20.00	Homes w/Electric Water Heater	213.4%	40.8%
-=/	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	61.0%	11.8%
200	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	197.5%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	64.0%	30.0%
203	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	64.0%	30.0%
204 205	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD SFD	ROB ROB	-	-	26.7 31.3	0.024 0.029	0.298	0.024	0.050	6	\$1.25 \$1.25	Homes with 60 Watt incandescent bulbs	100.0%	18.3% 18.3%
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	45.1	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0%	18.3%
200	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	-	-	27.0	0.041	0.050	0.030	0.050	20	\$15.00	Homes with noor fixtures	100.0%	18.3%
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	18.3%
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	350.0%	18.3%
211	ENERGY STAR Torchieres	SFD	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	18.3%
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	13.4%	17.5%
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	13.4%	17.5%
215 216	Residential Occupancy Sensors- 23 W CFL	SFD SFA	Retrofit ROB	-	-	7.6	0.000	0.298	0.000	0.050	10 20	\$18.00 \$86.00	Homes with occupancy sensors Homes with ceiling fans that have light fixtures	13.4%	17.5% 35.8%
216	Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.298	0.000	0.030	20	\$86.00	Homes with nightlights	64.0%	30.0%
218	LED Nightlight	SEA	ROB			22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	64.0%	30.0%
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.000	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8%
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	35.8%
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	35.8%
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	35.8%
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	35.8%
226	ENERGY STAR Torchieres	SFA	ROB	-	-	60.4 10.6	0.066	0.050	0.066	0.050	10	\$25.00 \$20.00	Homes with torchieres	100.0%	35.8%
227	ENERGY STAR Holiday Lights	SFA SFA	ROB	-	-	4.6	0.000	0.000	0.000	0.000	10	\$20.00 \$18.00	Homes with holiday lights	60.0%	16.7% 17.5%
228	Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit			7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	49.0%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	64.0%	30.0%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	64.0%	30.0%
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	28.0%
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	28.0%
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.0%
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	28.0%
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7 71.2	0.031	0.298	0.031	0.050	13.7	\$20.00 \$30.00	Homes with general service lamps	100.0%	28.0% 28.0%
220		MF	ROB	-	-		0.01.0	0.000	0.070	0.000	20	\$30.00 \$20.00	Homes with reflector lamps	100.0%	28.0%
239	ENERGY STAR LEDs -Reflector Lamp		DOD.			017									
239 240 241	ENERGY STAR LEDS - Reliector Lamp ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres	MF	ROB ROB	-	-	81.7 60.4	0.057	0.050	0.057	0.050	20	\$20.00 \$25.00	Homes with outdoor fixtures Homes with torchieres	100.0%	28.0%

Measure	Assumptions - Penn Power														
		Home Type	ROB vs.	Base		Annual	Per Unit Winter		Per Unit Summer						
Measure #	Measure Name	(SFA, SFD,	Retrofit vs. NC	Elec. Use	% Elec. Savings	Elec. Savings	Demand	Winter CF	Demand	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
		MF)	vs. NC	(kWh)	_	(kWh)	(kW)		(kW)						
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
245 300	Residential Occupancy Sensors- 23 W CFL Appliances	MF	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	20.4%	4.3%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	20.4%	4.3%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	65.4%	32.6%
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	0.0%	32.6%
305	Energy Star bottom mount freezer without door ice Energy Star top mount freezer with door ice	SFD	ROB	-	-	116.0 124.0	0.013	1.000	0.013	1.000	13 13	\$95.00 \$95.00	Homes with bottom mount freezers without door ice Homes with top mount freezers with door ice	0.0%	32.6%
305	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	33.5%	32.6%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	13.6%	6.9%
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	11.4%	6.9%
310	Energy Star chest freezer	SFD	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	31.3%	6.9%
311 312	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	213.0 136.0	0.010	0.136	0.010	0.136	12	\$0.00 \$270.00	Homes with dehumidifiers	49.7% 74.3%	85.3% 95.1%
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD SFD	ROB	-	-	224.0	0.046	1.000	0.046	1.000	10	\$270.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	74.5% 39.5%	95.1%
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	56.7%	18.9%
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	22.7%	37.2%
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	33.9%	37.2%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	29.1%	3.5%
318 319	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	SFD	ROB Retrofit	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	9.1%
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SEA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with residential whole house fails	10.2%	4.3%
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	10.9%	4.3%
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	68.1%	32.6%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	0.0%	32.6%
324 325	Energy Star bottom mount freezer without door ice Energy Star top mount freezer with door ice	SFA SFA	ROB ROB	-	-	116.0 124.0	0.013	1.000	0.013	1.000	13 13	\$95.00 \$95.00	Homes with bottom mount freezers without door ice	0.0%	32.6% 32.6%
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice Homes with side mount freezers with door ice	34.1%	32.6%
320	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0	0.013	1.000	0.013	1.000	11	\$80.00	Homes with side mount needers with door ice	9.0%	6.9%
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	9.0%	6.9%
329	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	9.0%	6.9%
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	22.5%	85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	SFA SFA	ROB	-	-	136.0 224.0	0.346	0.136	0.346	0.136	11	\$270.00 \$250.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	75.5% 28.1%	95.1% 18.9%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	45.4%	18.9%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	29.4%	37.2%
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	33.9%	37.2%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	20.4%	3.5%
337 338	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	SFA SFA	ROB	-	-	2.0 229.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans	100.0%	9.1%
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	Retrofit	-	-	1205.0	0.000	0.620	0.000	0.620	7	\$348.00	Homes with residential whole house fans Homes with secondary refrigerators	0.8%	9.1% 4.3%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	0.8%	4.3%
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	64.0%	32.6%
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	0.0%	32.6%
343 344	Energy Star bottom mount freezer without door ice	MF	ROB ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with bottom mount freezers without door ice	5.0%	32.6%
345	Energy Star top mount freezer with door ice Energy Star side mount freezer with door ice	MF	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice Homes with side mount freezers with door ice	29.5%	32.6%
346	Energy Star upright with manual defrost	MF	ROB	-	-	47.0	0.013	1.000	0.015	1.000	11	\$80.00	Homes with upright, manual defrost freezers	0.0%	6.9%
347	Energy Star upright with automatic defrost	MF	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	0.0%	6.9%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	28.6%	6.9%
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0 136.0	0.010	1.000	0.010	1.000	12	\$0.00 \$270.00	Homes with dehumidifiers	6.6%	85.3%
350 351	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB ROB	-	-	136.0 224.0	0.346	0.136	0.346	0.136	11	\$270.00 \$250.00	Homes with electric clothes dryer Homes with clothes washer and electric heat	54.6% 43.3%	95.1% 18.9%
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	27.3%	18.9%
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	16.6%	37.2%
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	15.7%	37.2%
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	MF homes with room AC	47.8%	3.5%
356 357	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	MF	ROB Retrofit	-	-	2.0 229.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	9.1%
400	Electronics	МГ	Retront	-	-	229.0	0.000	1.000	0.000	1.000	15	4.040.00 <sup>-</sup>	riones whit residential whole nouse falls	10.476	9.170
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	105.4%	49.0%
402	ENERGY STAR Copier	SFD	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	9.2%	82.7%
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	13.4%	6.0%
404	ENERGY STAR Monitor ENERGY STAR Multifunction	SFD	ROB	-	-	14.0 78.0	0.002	1.000	0.002	1.000	5	\$20.00 \$1.00	Homes with a desktop computer	44.3%	72.3% 63.3%
405	ENERGY STAR Multifunction ENERGY STAR Printer	SFD	ROB	-	-	26.0	0.011	1.000	0.011	1.000	5	\$1.00 \$1.00	Homes with a multifunction printer Homes with a printer	36.8%	63.3%
400	>50 in television	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a believe of the second se	51.2%	58.0%
408	<50 in television	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	152.3%	58.0%
409	Smart Strip Plug Outlets ENERGY STAR Computer	SFD	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
410		SEA	ROB			77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	77.6%	49.0%

Measure #	Assumptions - Penn Power Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	/Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	-	Homes with a copier	6.3%	82.7%
412	ENERGY STAR Fax Machine ENERGY STAR Monitor	SFA SFA	ROB	-	-	/8.0	0.011	1.000	0.011	1.000	4	\$60.00 \$20.00	Homes with a fax machine	13.4%	6.0%
415	ENERGY STAR Multifunction	SFA	ROB	-	-	78.0	0.002	1.000	0.002	1.000	5	\$20.00 \$1.00	Homes with a desktop computer Homes with a multifunction printer	25.0%	63.3%
414	ENERGY STAR Multifunction	SFA	ROB	-	-	26.0	0.001	1.000	0.004	1.000	5	\$1.00	Homes with a printer	25.0%	69.7%
415	>50 in television	SFA	ROB	-	-	481.0	0.074	0.280	0.004	0.280	15	\$1.00	Homes with a television	18.4%	58.0%
417	<50 in television	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	112.2%	58.0%
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
419	ENERGY STAR Computer	MF	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	70.6%	49.0%
420	ENERGY STAR Copier	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	6.0%	82.7%
421	ENERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	13.4%	6.0%
422	ENERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	29.7%	72.3%
423	ENERGY STAR Multifunction	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	23.9%	63.3%
424	ENERGY STAR Printer	MF	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	23.9%	69.7%
425	>50 in television	MF	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	28.7%	58.0%
426	<50 in television Smart Strip Plug Outlets	MF	ROB	-	-	136.0 124.0	0.263	0.280	0.263	0.280	15	\$1.00 \$15.00	Homes with a television	130.9%	58.0%
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
500	High Efficiency Two-Speed Pool Pump	SFD	ROB			530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	3.1%	10.0%
502	Variable Speed Pool Pumps	SFD	ROB	-		918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	3.1%	10.0%
502	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	0.0%	10.0%
504	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	0.0%	10.0%
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	0.0%	10.0%
506	Variable Speed Pool Pumps	MF	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	0.0%	10.0%
600	HVAC (Envelope)														
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	19495	13.56%	2644.0	0.300	0.700	0.100	0.700	15	\$716.94	Detached SF existing homes with electric heat and Central AC	9.8%	63.4%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	24617	20.81%	5122.0	2.400	0.700	0.500	0.700	25	\$1,578.98	Detached SF existing homes with electric heat and Central AC	9.8%	93.9%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	24617	25.75%	6338.0	2.900	0.700	0.600	0.700	25	\$2,099.61	Detached SF existing homes with electric heat and Central AC	9.8%	93.9%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	24617	26.77%	6591.0	3.100	0.700	0.600	0.700	25	\$2,714.13	Detached SF existing homes with electric heat and Central AC	9.8%	93.9%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	19495	7.54%	1469.0	0.700	0.700	0.100	0.700	25	\$2,099.61	Detached SF existing homes with electric heat and Central AC	9.8%	48.5%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	29052	32.90%	9557.0	4.800	0.700	0.300	0.700	25	\$2,524.30	Detached SF existing homes with electric heat and Central AC	9.8%	86.9%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	29052	37.04%	10762.0	5.400	0.700	0.300	0.700	25	\$3,201.10	Detached SF existing homes with electric heat and Central AC	9.8%	86.9%
608	ENERGY STAR Windows	SFD	ROB	19495	6.31%	1231.0	0.600	0.700	0.000	0.700	20	\$511.55	Detached SF existing homes with electric heat and Central AC	9.8%	87.6%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	20689	5.05%	1044.0	0.000	0.700	0.000	0.700	25	\$1,177.83	Detached SF existing homes with electric heat and Central AC	9.8%	25.4%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	20689	5.77%	1194.0	0.000	0.700	0.000	0.700	25	\$1,493.63	Detached SF existing homes with electric heat and Central AC	9.8%	25.4%
611 612	HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	19495 1382	-7.89%	2234.0 -109.0	3.400 0.000	0.700	0.200	0.700	14 15	\$497.62 \$716.94	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	9.8% 47.7%	77.0% 63.4%
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1624	14.90%	242.0	0.500	0.700	3.400	0.700	25	\$1,578.98	Detached SF existing homes with non-electric heat and Central AC	47.7%	93.9%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1624	18.41%	299.0	0.500	0.700	3.400	0.700	25	\$2,099.61	Detached SF existing homes with non-electric heat and Central AC	47.7%	93.9%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1624	19.15%	311.0	0.500	0.700	3.400	0.700	25	\$2,714.13	Detached SF existing homes with non-electric heat and Central AC	47.7%	93.9%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1382	4.99%	69.0	0.000	0.700	0.100	0.700	25	\$2,099.61	Detached SF existing homes with non-electric heat and Central AC	47.7%	48.5%
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1522	9.20%	140.0	0.000	0.700	0.300	0.700	25	\$2,524.30	Detached SF existing homes with non-electric heat and Central AC	47.7%	86.9%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1522	10.32%	157.0	0.000	0.700	0.300	0.700	25	\$3,201.10	Detached SF existing homes with non-electric heat and Central AC	47.7%	86.9%
619	ENERGY STAR Windows	SFD	ROB	1382	-3.91%	-54.0	0.000	0.700	0.000	0.700	20	\$511.55	Detached SF existing homes with non-electric heat and Central AC	47.7%	87.6%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1260	-8.49%	-107.0	0.000	0.700	0.000	0.700	25	\$1,177.83	Detached SF existing homes with non-electric heat and Central AC	47.7%	25.4%
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1260	-9.68%	-122.0	0.000	0.700	0.000	0.700	25	\$1,493.63	Detached SF existing homes with non-electric heat and Central AC	47.7%	25.4%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1382	8.76%	121.0	0.000	0.700	0.200	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	47.7%	77.0%
					011 0 / 1		0.000	0.1.0.0	0.200	0.100		÷ 10 1102			
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1179	-6.53%	-77.0	0.000	0.700	0.200	0.580	15	\$716.94	Detached SF existing homes with non-electric heat and room AC	24.9%	63.4%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1453	18.86%	274.0	0.000	0.700	0.500	0.580	25	\$1,578.98	Detached SF existing homes with non-electric heat and room AC	24.9%	93.9%
			Retrofit	1453	23.26%	338.0	0.000	0.700	0.700	0.580	25	\$2,099.61	Detached SF existing homes with non-electric heat and room AC	24.9%	93.9%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD					0.000	0.700	0.700	0.580	25	\$2,714.13	Detached SF existing homes with non-electric heat and room AC	24.9%	93.9%
625 626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1453	24.23%	352.0	0.000		0.000						48.5%
625 626 627	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD SFD	Retrofit Retrofit	1179	6.62%	78.0	0.000	0.700	0.200	0.580	25	\$2,099.61	Detached SF existing homes with non-electric heat and room AC	24.9%	1010 / 1
625 626 627 628	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD SFD SFD	Retrofit Retrofit Retrofit	1179 1333	6.62% 11.55%	78.0 154.0	0.000	0.700	0.300	0.580	25	\$2,524.30	Detached SF existing homes with non-electric heat and room AC	24.9%	86.9%
625 626 627 628 629	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD SFD SFD SFD	Retrofit Retrofit Retrofit Retrofit	1179 1333 1333	6.62% 11.55% 13.05%	78.0 154.0 174.0	0.000 0.000 0.000	0.700 0.700 0.700	0.300	0.580	25 25	\$2,524.30 \$3,201.10	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9% 24.9%	86.9% 86.9%
625 626 627 628	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFD SFD SFD	Retrofit Retrofit Retrofit	1179 1333	6.62% 11.55%	78.0 154.0	0.000	0.700	0.300	0.580	25	\$2,524.30	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9%	86.9%
625 626 627 628 629 630	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD SFD SFD SFD SFD	Retrofit Retrofit Retrofit ROB	1179 1333 1333 1179	6.62% 11.55% 13.05% -3.56%	78.0 154.0 174.0 -42.0	0.000 0.000 0.000 0.000	0.700 0.700 0.700 0.700	0.300 0.400 0.100	0.580 0.580 0.580	25 25 20	\$2,524.30 \$3,201.10 \$511.55	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9% 24.9% 24.9%	86.9% 86.9% 87.6%
625 626 627 628 629 630 631	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows Floor Insulation - R0 to R13 (Cost Per Square Foot Installed)	SFD SFD SFD SFD SFD SFD	Retrofit Retrofit Retrofit ROB Retrofit	1179 1333 1333 1179 1053	6.62% 11.55% 13.05% -3.56% -10.45%	78.0 154.0 174.0 -42.0 -110.0	0.000 0.000 0.000 0.000 0.000	0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 0.000	0.580 0.580 0.580 0.580	25 25 20 25	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9% 24.9% 24.9% 24.9%	86.9% 86.9% 87.6% 25.4%
625 626 627 628 629 630 631 632 633	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD SFD SFD SFD SFD SFD SFD	Retrofit Retrofit Retrofit ROB Retrofit Retrofit	1179 1333 1333 1179 1053 1053	6.62% 11.55% 13.05% -3.56% -10.45% -11.97%	78.0 154.0 174.0 -42.0 -110.0 -126.0	0.000 0.000 0.000 0.000 0.000 0.000	0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 0.000 -0.100	0.580 0.580 0.580 0.580 0.580 0.580	25 25 20 25 25 25	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83 \$1,493.63	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9% 24.9% 24.9% 24.9% 24.9%	86.9% 86.9% 87.6% 25.4%
625 626 627 628 629 630 631 632 633	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home)	SFD SFD SFD SFD SFD SFD SFD SFD SFD	Retrofit Retrofit Retrofit ROB Retrofit Retrofit Retrofit	1179 1333 1333 1179 1053 1053 1179	6.62% 11.55% 13.05% -3.56% -10.45% -11.97% -2.21%	78.0 154.0 174.0 -42.0 -110.0 -126.0 -26.0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 0.000 -0.100 0.000	0.580 0.580 0.580 0.580 0.580 0.580 0.580	25 25 20 25 25 25 14	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83 \$1,493.63 \$497.62	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	24.9% 24.9% 24.9% 24.9% 24.9% 24.9%	86.9% 86.9% 87.6% 25.4% 25.4% 77.0%
625 626 627 628 629 630 631 632 633 633	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per sf of living space for a typical single-family home)	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFD	Retrofit Retrofit Retrofit ROB Retrofit Retrofit Retrofit Retrofit	1179 1333 1333 1179 1053 1053 1053 1179 16134 21667 21667	6.62% 11.55% 13.05% -3.56% -10.45% -11.97% -2.21% 17.89%	78.0 154.0 174.0 -42.0 -110.0 -126.0 -26.0 2886.0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.400 2.700 3.400	0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 0.000 -0.100 0.000 0.200 0.500 0.700	0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.700 0.700 0.700	25 25 20 25 25 25 14 15 25 25 25	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83 \$1,493.63 \$497.62 \$729.12	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with en-electric heat and room AC	24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 22.5% 22.5%	86.9% 86.9% 87.6% 25.4% 25.4% 77.0% 63.4%
625 626 627 628 629 630 631 632 633 633 634 635 636 637	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R.60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENIRGY STRA Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (Cost per s of living space for a typical single-family home) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation R0 to R0 to R0 (Cost Per Square Foot installed)	SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA SFA SFA	Retrofit Retrofit Retrofit ROB Retrofit Retrofit Retrofit Retrofit Retrofit Retrofit Retrofit	1179 1333 1333 1179 1053 1053 1179 16134 21667 21667 21667	6.62% 11.55% 13.05% -3.56% -10.45% -11.97% -2.21% 17.89% 25.54% 31.63% 32.90%	78.0 154.0 174.0 -42.0 -110.0 -126.0 2886.0 5533.0 6854.0 7129.0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.400 2.700 3.400 3.500	0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 -0.100 0.000 0.200 0.200 0.500 0.700	0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.700 0.700 0.700 0.700	25 25 20 25 25 14 15 25 25 25 25 25	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83 \$1,493.63 \$497.62 \$729.12 \$1,605.80 \$2,135.28 \$2,760.24	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 22.5% 22.5% 22.5%	86.9% 86.9% 87.6% 25.4% 77.0% 63.4% 93.9% 93.9% 93.9%
625 626 627 628 629 630 631 632 633 634 635 636	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) HVAC Duct Sealing (Cost per typical single-family home) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD SFD SFD SFD SFD SFD SFD SFD SFD SFA SFA	Retrofit Retrofit Retrofit ROB Retrofit Retrofit Retrofit Retrofit Retrofit Retrofit	1179 1333 1333 1179 1053 1053 1053 1179 16134 21667 21667	6.62% 11.55% 13.05% -3.56% -10.45% -11.97% -2.21% 17.89% 25.54% 31.63%	78.0 154.0 174.0 -42.0 -110.0 -126.0 -26.0 2886.0 5533.0 6854.0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.400 2.700 3.400	0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.300 0.400 0.100 0.000 -0.100 0.000 0.200 0.500 0.700	0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.700 0.700 0.700	25 25 20 25 25 25 14 15 25 25 25	\$2,524.30 \$3,201.10 \$511.55 \$1,177.83 \$1,493.63 \$497.62 \$729.12 \$1,605.80 \$2,135.28	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 24.9% 22.5% 22.5%	86.9% 86.9% 87.6% 25.4% 77.0% 63.4% 93.9% 93.9%

Aeasure #	Assumptions - Penn Power Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	÷	Measure/End Use Description	Base Saturation	
641	ENERGY STAR Windows	SFA	ROB	16134	6.72%	1084.0	0.500	0.700	0.100	0.700	20	\$429.65	Attached SF existing homes with electric heat and Central AC	22.5%	87.6%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit		6.31%		0.200		0.000			\$1,197.84	Attached SF existing homes with electric heat and Central AC	22.5%	25.4%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	17395	7.25%	1261.0	-0.100	0.700	-0.100	0.700	25	\$1,519.00	Attached SF existing homes with electric heat and Central AC	22.5%	25.4%
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	16134	13.25%	2138.0	3.200	0.700	0.300	0.700	14	\$505.13	Attached SF existing homes with electric heat and Central AC	22.5%	77.0%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1344	-7.51%	-101.0	0.000	0.700	0.100	0.700	15	\$729.12	Attached SF existing homes with non-electric heat and Central AC	40.8%	63.4%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1630	17.55%	286.0	0.000	0.700	0.600	0.700	25	\$1,605,80	Attached SF existing homes with non-electric heat and Central AC	40.8%	93.9%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1630	21.78%	355.0	0.000	0.700	0.700	0.700	25	\$2,135.28	Attached SF existing homes with non-electric heat and Central AC	40.8%	93.9%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1630	22.64%	369.0	0.000	0.700	0.700	0.700	25	\$2,760.24	Attached SF existing homes with non-electric heat and Central AC	40.8%	93.9%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1344	6.18%	83.0	0.000	0.700	0.100	0.700	25	\$2,135.28	Attached SF existing homes with non-electric heat and Central AC	40.8%	48.5%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1426	5.75%	82.0	0.000	0.700	0.200	0.700	25	\$2,582.26	Attached SF existing homes with non-electric heat and Central AC	40.8%	86.9%
651 652	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFA SFA	Retrofit ROB	1426 1344	6.45% -3.05%	92.0 -41.0	0.000	0.700	0.200	0.700	25 20	\$3,274.61 \$429.65	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	40.8% 40.8%	86.9% 87.6%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1228	-3.05%	-41.0	0.000	0.700	0.000	0.700	20	\$429.65	Attached SF existing homes with non-electric heat and Central AC	40.8%	25.4%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1228	-9.45%	-116.0	0.000	0.700	0.000	0.700	25	\$1,519.00	Attached SF existing homes with non-electric heat and Central AC	40.8%	25.4%
				1011		101.0	0.000	0.700	0.000	0.700		6505.42		10.00/	
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1344	9.23%	124.0	0.000	0.700	0.200	0.700	14	\$505.13	Attached SF existing homes with non-electric heat and Central AC	40.8%	77.0%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1197	-6.18%	-74.0	0.000	0.700	0.200	0.580	15	\$729.12	Attached SF existing homes with non-electric heat and room AC	16.3%	63.4%
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1518	21.15%	321.0	0.000	0.700	0.500	0.580	25	\$1,605.80	Attached SF existing homes with non-electric heat and room AC	16.3%	93.9%
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1518	26.42%	401.0	0.000	0.700	0.700	0.580	25	\$2,135.28	Attached SF existing homes with non-electric heat and room AC	16.3%	93.9%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1518	27.47%	417.0	0.000	0.700	0.700	0.580	25	\$2,760.24	Attached SF existing homes with non-electric heat and room AC	16.3%	93.9%
660 661	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA SFA	Retrofit Retrofit	1197 1288	8.02% 7.07%	96.0 91.0	0.000	0.700	0.200	0.580	25 25	\$2,135.28 \$2,582.26	Attached SF existing homes with non-electric heat and room AC Attached SF existing homes with non-electric heat and room AC	16.3%	48.5% 86.9%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1288	7.92%	102.0	0.000	0.700	0.100	0.580	25	\$3,274.61	Attached SF existing homes with non-electric heat and room AC	16.3%	86.9%
663	ENERGY STAR Windows	SFA	ROB	1197	-2.76%	-33.0	0.000	0.700	0.100	0.580	20	\$429.65	Attached SF existing homes with non-electric heat and room AC	16.3%	87.6%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1075	-9.95%	-107.0	0.000	0.700	-0.100	0.580	25	\$1.197.84	Attached SF existing homes with non-electric heat and room AC	16.3%	25.4%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1075	-11.35%	-122.0	0.000	0.700	-0.100	0.580	25	\$1,519.00	Attached SF existing homes with non-electric heat and room AC	16.3%	25.4%
666	HVAC Duct Sealing (Cost per typical single-family home)	SEA	Retrofit	1197	-1.92%	-23.0	0.000	0.700	0.000	0.580	14	\$505.13	Attached SF existing homes with non-electric heat and room AC	16.3%	77.0%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	4087	23.51%	961.0	0.000	0.700	0.100	0.700	15	\$349.86	MF existing homes with electric heat and central AC	11.8%	63.4%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	4817	15.15%	730.0	0.400	0.700	0.000	0.700	25	\$1,227.92	MF existing homes with electric heat and central AC	11.8%	86.9%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	4817	17.09%	823.0	0.400	0.700	0.000	0.700	25	\$1,557.15	MF existing homes with electric heat and central AC	11.8%	86.9%
670 671	ENERGY STAR Windows	MF	ROB	4087	16.88%	690.0 298.0	0.300	0.700	0.100	0.700	20	\$297.38 \$271.38	MF existing homes with electric heat and central AC	11.8%	87.6%
672	HVAC Duct Sealing (Cost per typical multi-family home) Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit Retrofit	672	-4.61%	-31.0	0.900	0.700	0.100	0.700	14	\$2/1.36 \$349.86	MF existing homes with electric heat and central AC MF existing homes with non-electric heat and central AC	29.4%	63.4%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	683	1.61%	11.0	0.000	0.700	0.000	0.700	25	\$1.227.92	MF existing homes with non-electric heat and central AC	29.4%	86.9%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	683	1.90%	13.0	0.000	0.700	0.100	0.700	25	\$1,557.15	MF existing homes with non-electric heat and central AC	29.4%	86.9%
675	ENERGY STAR Windows	MF	ROB	672	-3.57%	-24.0	0.000	0.700	0.100	0.700	20	\$297.38	MF existing homes with non-electric heat and central AC	29.4%	87.6%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	672	-0.15%	-1.0	0.000	0.700	0.100	0.700	14	\$271.38	MF existing homes with non-electric heat and central AC	29.4%	77.0%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	734	-4.90%	-36.0	0.000	0.700	0.100	0.580	15	\$349.86	MF existing homes with non-electric heat and room AC	30.2%	63.4%
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	746	1.61%	12.0	0.000	0.700	0.000	0.580	25	\$1,227.92	MF existing homes with non-electric heat and room AC	30.2%	86.9%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	746	1.74%	13.0	0.000	0.700	0.000	0.580	25	\$1,557.15	MF existing homes with non-electric heat and room AC	30.2%	86.9%
680	ENERGY STAR Windows	MF	ROB	734	-3.68%	-27.0	0.000	0.700	0.000	0.580	20	\$297.38	MF existing homes with non-electric heat and room AC	30.2%	87.6%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	734	0.00%	0.0	0.000	0.700	0.000	0.580	14	\$271.38	MF existing homes with non-electric heat and room AC	30.2%	77.0%
700	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	19495	1.74%	339.0	0.000	1.000	0.000	1.000	15	\$25.00	Detached SF homes with heat pumps	9.1%	39.2%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	19495	9.45%	1843.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	9.1%	66.8%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	15973	4.76%	761.0	0.000	0.700	0.100	0.700	12	\$822.00	Detached SF homes with heat pumps	9.1%	14.7%
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	15973	6.42%	1025.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Detached SF homes with heat pumps	9.1%	14.7%
705	GSHP w/ Desuperheater	SFD	ROB	19949	10.51%	2097.0	0.000	0.700	0.400	0.700	30	\$11,300.00	Detached SF homes with heat pumps	9.1%	14.7%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	15973	30.07%	4803.0	6.500	0.700	0.600	0.700	15	\$1,200.00	Detached SF homes with heat pumps	9.1%	14.7%
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	15973	10.07%	1609.0	0.000	0.700	0.300	0.700	30	\$10,700.00	Detached SF homes with heat pumps	9.1%	14.7%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	987	11.55%	114.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	58.2%	14.7%
709 710	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons) HVAC Tune Up (Cooling Season Only Tune Up)	SFD SFD	ROB Retrofit	987 1382	16.21% 9.99%	160.0 138.0	0.000	0.000	0.100	0.700	14 7	\$2,407.00 \$50.00	Detached SF existing homes with Central AC Detached SF existing homes with central AC	58.2% 58.2%	14.7% 57.1%
711	Furnace High Efficiency Fan	SFD	Retrofit	1382	-	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	84.9%	10.0%
712		SED	Retrofit	1382	1.81%	25.0	0.000	0.000	0.000	0.700	15	\$25.00		58.2%	39.2%
712	Programmable Thermostat (CAC) Furnace Whistle	SFD	Retrofit	1362	1.61%	25.0	0.000	1.000	0.000	1.000	15	\$25.00 \$2.00	Detached SF existing homes with Central AC Detached SF existing homes with non-electric furnace	58.2%	10.0%
					-				0.000						
	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	Detached SF homes with room AC	29.1%	3.5%
714	Room AC (PAC) Patiesmont with employment (nor AC unit)	SED	ROR	252	7 270/	26.0	0.000	0.000	0.000	0.580	4	\$65.00	Datashad SE homes with room AC	20.197	2 50/
714 715 716	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP)	SFD SFA	ROB Retrofit	353 16134	7.37%	26.0 271.0	0.000	0.000	0.000	0.580	4	\$65.00 \$25.00	Detached SF homes with room AC Attached SF existing homes with heat pump	29.1%	3.5%

Measure #	Assumptions - Penn Power Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	13232	4.78%	632.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	6.1%	14.7%
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	13232	6.43%	851.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	6.1%	14.7%
720	GSHP w/ Desuperheater	SFA	ROB	17210	7.70%	1325.0	0.000	0.700	0.400	0.700	30	\$11,300.00	Attached SF existing homes with heat pump	6.1%	14.7%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	13232	31.27%	4138.0	5.900	0.700	0.500	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	6.1%	14.7%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	13232	6.39%	846.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	6.1%	14.7%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	960	11.56%	111.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Attached SF homes with Central AC	63.3%	14.7%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	960	16.15%	155.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Attached SF homes with Central AC	63.3%	14.7%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1344	9.97%	134.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	63.3%	57.1%
726	Furnace High Efficiency Fan	SFA	Retrofit	1344	-	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	73.5%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	1344	1.41%	19.0	0.000	0.000	0.000	0.700	15	\$25.00	Attached SF homes with Central AC	63.3%	39.2%
728	Furnace Whistle	SFA	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	73.5%	10.0%
729 730	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA SFA	ROB ROB	353 353	100.00%	353.0 26.0	0.000	0.000	1.103	0.580	4	\$65.00 \$65.00	Attached SF homes with room AC	20.4%	3.5%
730	Room AC (RAC) Retirement with replacement (per AC unit) Programmable Thermostat (ASHP)	MF	ROB	353 4087	0.98%	26.0	0.000	1.000	0.000	0.580	4	\$65.00 \$25.00	Attached SF homes with room AC MF homes with heat pump	20.4%	39.2%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	4087	8.27%	338.0	0.000	0.700	0.000	0.700	15	\$25.00 \$100.00	MF homes with heat pump	2.2%	59.2% 66.8%
733	Air Source Heat Pump (Maintenance) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	3398	4.65%	158.0	0.000	0.700	0.000	0.700	12	\$100.00	MF homes with heat pump	2.2%	14.7%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	3398	6.33%	215.0	0.000	0.700	0.000	0.700	12	\$1,644.00	MF homes with heat pump	2.2%	14.7%
735	GSHP w/ Desuperheater	MF	ROB	6687	-16.29%	-1089.0	0.000	0.700	0.200	0.700	30	\$11,300.00	MF homes with heat pump	2.2%	14.7%
736	Ductless Mini-Split Heat Pumps	MF	ROB	3398	19.36%	658.0	1.300	0.700	0.100	0.700	15	\$1,200.00	MF homes with heat pump	2.2%	14.7%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	3398	-32.08%	-1090.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	2.2%	14.7%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	480	11.67%	56.0	0.000	0.000	0.000	0.700	14	\$1,333.00	MF homes with Central AC	43.4%	14.7%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	480	16.25%	78.0	0.000	0.000	0.100	0.700	14	\$2,407.00	MF homes with Central AC	43.4%	14.7%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	672	9.97%	67.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	43.4%	57.1%
741	Furnace High Efficiency Fan	MF	Retrofit	672	-	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	73.2%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	672	0.30%	2.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	43.4%	39.2%
743	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	73.2%	10.0%
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$65.00	MF homes with room AC	47.8%	3.5%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	MF homes with room AC	47.8%	3.5%
800	Whole House	CED	D . C.	20070	6.450/	4040.0	4.400	0.700	4,400	0.700	2	C1 40 00		0.00/	0.001
801	Direct (Real Time) Feedback	SFD	Retrofit	30068	6.15%	1849.2	1.490 0.540	0.700	1.490	0.700	3	\$140.00 \$22.50	Detached SF existing homes with electric heat and Central AC	9.8%	2.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	30068 6696	2.23%	670.5	0.540	0.700	0.540	0.700	2	1.1.1.1.1	Detached SF existing homes with electric heat and Central AC	9.8%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit Retrofit	6696	6.15% 2.23%	411.8 149.3	0.332	0.700	0.332 0.120	0.700	3	\$140.00 \$22.50	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	47.7% 47.7%	2.0%
804 805	Indirect Feedback (O-Power) Direct (Real Time) Feedback	SFD	Retrofit	6493	6.15%	399.3	0.120	0.700	0.120	0.700	3	\$22.50	Detached SF existing homes with non-electric heat and Central AC.	24.9%	2.0%
805	Indirect Feedback	SFD	Retrofit	6493	2.23%	144.8	0.322	0.700	0.322	0.580	2	\$140.00	Detached SF existing homes with non-electric heat and room AC	24.9%	2.0%
800	Direct (Real Time) Feedback	SFA	Retrofit	26787	6.15%	1647.4	1.327	0.700	1.327	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	24.976	2.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	26787	2.23%	597.4	0.481	0.700	0.481	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	22.5%	2.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	6736	6.15%	414.3	0.334	0.700	0.334	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	40.8%	2.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	6736	2.23%	150.2	0.121	0.700	0.121	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	40.8%	2.0%
811	Direct (Real Time) Feedback	SFA	Retrofit	6589	6.15%	405.2	0.327	0.700	0.327	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	16.3%	2.0%
812	Indirect Feedback (O-Power)	SFA	Retrofit	6589	2.23%	146.9	0.118	0.700	0.118	0.580	2	\$22.50	Attached SF existing homes with non-electric heat and room AC	16.3%	2.0%
813	Direct (Real Time) Feedback	MF	Retrofit	11627	6.15%	715.1	0.576	0.700	0.576	0.700	3	\$140.00	MF existing homes with electric heat and central AC	11.8%	2.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	11627	2.23%	259.3	0.209	0.700	0.209	0.700	2	\$22.50	MF existing homes with electric heat and central AC	11.8%	2.0%
815	Direct (Real Time) Feedback	MF	Retrofit	3640	6.15%	223.9	0.180	0.700	0.180	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	29.4%	2.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	3640	2.23%	81.2	0.065	0.700	0.065	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	29.4%	2.0%
817	Direct (Real Time) Feedback	MF	Retrofit	3702	6.15%	227.7	0.183	0.700	0.183	0.580	3	\$140.00	MF existing homes with non-electric heat and room AC	30.2%	2.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	3702	2.23%	82.6	0.067	0.700	0.067	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	30.2%	2.0%
900 901	New Construction Residential New Construction-Tier 1	SFD	NC	19869	15.00%	2980.4	1.260	0.700	0.465	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	26.1%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	19869	30.00%	5960.7	2.520	0.700	0.930	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	26.1%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	7454	15.00%	1118.1	0.090	0.700	0.360	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central AC	63.0%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	7454	30.00%	2236.2	0.180	0.700	0.720	0.700	15	\$5,628.00	New construction detached SF homes w/ non-electric heat and Central AC	63.0%	0.0%
905	Residential New Construction Tier 1	MF	NC	10488	15.00%	1573.2	0.420	0.700	0.270	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	26.1%	0.0%
906	Residential New Construction Tier 2 Residential New Construction Tier 1	MF	NC NC	10488 4085	30.00% 15.00%	3146.4 612.8	0.840	0.700	0.540 0.165	0.700	15 15	\$3,203.25 \$1.876.00	New construction MF homes with electric heat and central AC New construction MF homes with non-electric heat and Central AC	26.1% 63.0%	0.0%
907															

Measure	Assumptions Sources - Penn Power Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100	Water Heating End Use Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-		PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 because the kW demand impact for this measure was already on a coincident near basis
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	peak dasis.
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	First Energy	PA Baseline	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	First Energy	PA Baseline	base saturation carefration
200	Lighting								Energy Star	TKM					
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202 203	Electroluminescent Nightlight LED Nightlight	SFD SFD	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Amazon.com Lowe's	PA Baseline PA Baseline	PA Baseline PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	

						MID-ATL		CT	MID-ATL		MID-				
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	TRM PA TRM /	MID-ATL TRM	Lighting CF Report	TRM PA TRM /	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A7AB8535011?q=Residential+Occupancy+Sensors&PfF=0&d pq=Residential%2dbCocupancy%2DSensors&FtORAf=CPCA&dppc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/170120EE53371R85350112q=Residential+Occupancy+Sensors&pf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70/D2815A37AB85355011?q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217 218	Electroluminescent Nightlight LED Nightlight	SFA SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Amazon.com Lowe's	PA Baseline PA Baseline	PA Baseline PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0& pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whre-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0& pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&ppc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A70D2BEI53A7AB8353011?q=Residential+Occupancy+Sensors&dpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232 233	Electroluminescent Nightlight LED Nightlight	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Amazon.com Lowe's	PA Baseline PA Baseline	PA Baseline PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM / GDS	PA TRM / GDS calculation	PA TRM	PA TRM / GDS	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	calculation PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	calculation PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	GDS calculation	GDS calculation	CT Lighting CF Report	GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	

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239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	Lighting CF Report	MID-ATL TRM	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
242	ENERGY STAR Holiday Lights	MF	ROB	_	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB83530112q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2DOccupancy%2bSensors&FORM=CPCA&dpp==16
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/whrer-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&lpf=0&d pq=Residential%2DOccupancy%2bSensors&E/ORM=CJPCA&lppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar0620EE5A37AB853530112q=Residential+Occupancy+Sensors&dpf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
301	Appliances Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	First Energy	PECO 2011	
313	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB ROB		-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	First Energy First Energy	PA Baseline PA Baseline	
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar	First Energy	PA Baseline	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=a&pq=whole+house+fan&sp=&rt=Com pletions&tk=&spv=&sl=E≻=&st=*=AAAAAAAA#x0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, GDS estimate	PA Baseline	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, GDS estimate	PA Baseline	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, GDS estimate	PA Baseline	
				( I	(			-			OHIO	EnergyStar			
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	Calculator	First Energy	EnergyStar Market Penetration Summary	

332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-		PA TRM	PA TRM	PA TRM	PA TRM			MID-ATL TRM	First Energy	PA Baseline	
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	PA TRM EnergyStar	PA TRM	PA TRM	PA TRM			MID-ATL TRM EnergyStar	First Energy	PA Baseline	
334 335	ENERGY STAR Dishwashers- with Electric Water Heating ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB ROB	-		Calculator EnergyStar	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Calculator EnergyStar	First Energy First Energy	PA Baseline PA Baseline	
						Calculator EnergyStar						Calculator EnergyStar			
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	Calculator Codes and	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Calculator	First Energy	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&rt=Com pletions&rk=&spv=&sl=E≻=&st=*=AAAAAAAA#x0y0
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	First Energy	PA Baseline	Used statewide for EE sat (Penn Power was 0%)
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	First Energy, PA Baseline	PA Baseline	
348	Energy Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	First Energy, PA Baseline	PA Baseline	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
350 351	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM PA TRM	PA TRM	PA TRM		First Energy	PECO 2011	
351	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM	First Energy First Energy	PA Baseline PA Baseline	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&ert=Com pletions&rk=&spv=&sl=E≻=&cst=&cast=AAAAAAAA#x0y0
400	Electronics											PPL PY2 Report-		EnergyStar Market	
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar	First Energy	Penetration Summary EnergyStar Market	Savings - PA TRM p.122
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP	Penetration Summary EnergyStar Market	
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	Penetration Summary EnergyStar Market	
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	Penetration Summary	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP	EnergyStar Market Penetration Summary	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penn Power, GDS estimate	EnergyStar Market Penetration Summary	
407	>50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
408	<50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	First Energy	EnergyStar Market Penetration Summary	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PA Baseline	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	First Energy, PA Baseline	EnergyStar Market Penetration Summary	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP	EnergyStar Market Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penn Power, GDS estimate	EnergyStar Market Penetration Summary	
													ono connate	· coctration ounditary	

Solution       Find the speed Pool Pumps       Solution       Find       Find the speed Pool Pumps       Find the speed Pool	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlanic TRMs
117Solutingenomia5.37Kol7.57	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
418       Smart Step Parg Quales       Step       Rerord       -       -       PA TRM       PA TRM      PA TRM      PA TRM	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
419       ENERGY STAR Computer       MF       ROB       -       -       PA TRM       <	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
420       ENERGY STAR Copier       MF       ROB       -       -       PA TRM       PA TRM      PA TRM       PA TRM	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
And the set of the set o	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
And the speed pool pumps       And the speed p	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
4.22       ENERGY STAR Modulor       MP       ROB       -       -       PA TRM       <	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
4.2.       EXCRAPT STAR Multification       MP       ROB       -       -       PA TRA	e sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
424FACKAGY STAR HunderMPKOB $C$ PAPAPAPAPAPAPAFAPAPAFAPAPAFAFAPAFA	ie sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
425       >50 in television       MF       ROB       -       PA TRM	ie sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
426       < S0 in television	se sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs.
427     Smart Strip Plug Outlets     MF     Retroft     -     -     PA TRM     PA TRM<	ee sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
SN     Ingrinitedry reospect foor long     Ord     Ord     Index     International field     Trans     Field     International field     PA and       502     Variable Speed Pool Pumps     SFD     ROB     -     -     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site	se sat. assumes that half of homes with a pool/spa pump have a pool; savings- and Mid Atlantic TRMs
SN     Ingrinitedry reospect foor long     Ord     Ord     Index     International field     Trans     Field     International field     PA and       502     Variable Speed Pool Pumps     SFD     ROB     -     -     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site       504     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL. TRM     First Energy     GDS Estimate     Base site	and Mid Atlantic TRMs
5/2     Variable Speed Pool Pumps     SFD     ROB     -     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL TRM     First Energy     GDS Estimate     TRM all Ohio TRM       5/0     High Efficiency Two-Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL TRM     First Energy     GDS Estimate     TRM all Ohio TRM       5/0     Variable Speed Pool Pumps     SFA     ROB     -     -     PA TRM     PA TRM     PA TRM     PA TRM     PA TRM     MID-ATL TRM     First Energy     GDS Estimate     TRM all Ohio TRM	se sat. assumes that half of homes with a pool/spa pump have a pool; PA
S03     Fign Ethiciency Two-Speed Pool Pump     SFA     ROB     -     -     PA TRAI     PA TRAI </td <td>se sat assumes that hair of nomes with a pool/spa pump have a pool; PA M algorithm for savings used - kWss and kWVFD parameters taken from io TRM</td>	se sat assumes that hair of nomes with a pool/spa pump have a pool; PA M algorithm for savings used - kWss and kWVFD parameters taken from io TRM
504 Variable Speed Pool Pumps SFA ROB PA TKM / MID-ATL TKM First Energy GDS Estimate TRM alg	se sat. assumes that half of homes with a pool/spa pump have a pool
	se sat. assumes that half of homes with a pool/spa pump have a pool; PA M algorithm for savings used - kWss and kWVFD parameters taken from io TRM
505 High Efficiency Two-Speed Pool Pump MF ROB PA TRM MID-ATL TRM PA TRM MID-ATL TRM PA TRM MID-ATL TRM PA TRM MID-ATL TRM First Energy GDS Estimate Base sat	se sat. assumes that half of homes with a pool/spa pump have a pool
506 Variable Speed Pool Pumps MF ROB PA TKM / PA TKM PA TKM PA TKM MID-ATL TKM First Energy GDS Estimate TKM alg	se sat. assumes that half of homes with a pool/spa pump have a pool; PA M algorithm for savings used - kWss and kWVFD parameters taken from io TRM
600         IVAC (Envelope)         Image: Constraint of the second secon	
Measure Newsman 2011	42/sq ft (from Navigant) multiplied by square footage estimate
(1) Artic Londaine R(1 to P10 (Cost Per Super East installed) SED Partofic PamPate ParPate ParPate PA TPM PamPate PA TPM Measure Navigant 2011, Liver Energy PA Booline \$1.41/st	41/sq ft (from Navigant) multiplied by square footage estimate ; EE ration based on homes with insulation
(12) Anis Lambian 20 D29 (Can Da Summ Environ Bud) SED Barrier Barrier B. Barrier Barrier B. D. TDM Barrier B. D. TDM Barrier B. D. TDM Measure Navigant 2011, Una Farrier B. B. Barrier St. 82/80	82/sq ft (from Navigant) multiplied by square footage estimate ; EE ration based on homes with insulation
(1) Artic Londaine R0 to R60 (Cort Bar Sunce Lost installed) SED Ratefit Bankate Regulate Regulate Regulate DA TDM Regulate DA TDM Measure Navigant 2011, Lier Forenze DA Regulate \$229/st	29/sq ft (from Navigant) multiplied by square footage estimate ; EE ration based on homes with insulation
GDS Neurope Neurope 101	69/sq ft (from Navigant) multiplied by square footage estimate
	42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage
(d) Well levelation P() or P10 (Cost Par Suman East Localization) SED Partor Pambras Parebase Parebase Par Parto P 10 (Cost Par Suman East Localization) SED Partor Parebase Parebase Parebase Par Par Parebase Par Parebase Par Par Parebase Par	mate 51/sq ft (from Navigant) multiplied by square footage estimate
	25 per 100 square feet of windows multiplied by square footage
609         Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)         SFD         Retrofit         RemRate         -         RemRate         PA TRM         RemRate         PA TRM         If the second seco	55/sq ft (from Navigant) multiplied by square footage estimate
610     Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)     SFD     RemRate     -     RemRate     PA TRM     RemRate     PA TRM     Massing and the second	86/sq ft (from Navigant) multiplied by square footage estimate
611       HVAC Duct Sealing (Cost per typical single-family home)       SFD       Retrofit       RemRate       -       RemRate       PA TRM       RemRate       PA TRM       DEER database       First Energy       PA Baseline	
	42/sq ft (from Navigant) multiplied by square footage estimate
613 Artic Insulation- R0 to R19 (Cost Per Square Foot installed) SFD Ret RemRate SFD Ret RemRate RemRate RemRate RemRate RemRate PA TRM RemRate PA TRM RemRate PA TRM RemRate PA TRM SFD Ret RemRate PA TRM RemRate PA TRM SFD Ret RemRate PA TRM RemRate PA TRM SFD Ret RemRate PA TRM SFD Ret Ret RemRate PA TRM SFD Ret RemRate SFD Ret RemRate SFD Ret Ret RemRate SFD Ret RemRate SFD Ret RemRate SFD Ret Ret Ret RemRate SFD Ret	

		-									GDS				
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	1.82/sq ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	2.29/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	
623	Air Scaling (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
630	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	ROB Retrofit	RemRate	-	RemRate	RemRate	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM GDS Measure	MID-ATL TRM Navigant 2011,	First Energy First Energy	PA Baseline PA Baseline	\$325 per 100 square feet of windows multiplied by square footage \$1.55/sq ft (from Navigant) multiplied by square footage estimate
	· · · · · · · · · · · · · · · · · · ·										Life Report	First Energy			
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	229/sq ft (from Navigant) multiplied by square footage estimate; EE saturation based on homes with insulation
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage

n     n <th></th> <th>GDS</th> <th></th> <th></th> <th></th> <th></th>												GDS				
Normer         Normer<	642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Life		First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
image       image	643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10       10     10     10     10     10     10     10     10     10     10     10     10     10       10 <th< td=""><td>644</td><td>HVAC Duct Sealing (Cost per typical single-family home)</td><td>SFA</td><td>Retrofit</td><td>RemRate</td><td>-</td><td>RemRate</td><td>RemRate</td><td>PA TRM</td><td>RemRate</td><td>PA TRM</td><td></td><td>GDS Adjustment</td><td>First Energy</td><td>PA Baseline</td><td></td></th<>	644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM		GDS Adjustment	First Energy	PA Baseline	
····································	645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
if         if<         if<<         if<         if<        <	646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	
41       51 <th< td=""><td>647</td><td>Attic Insulation- R0-R38 (Cost Per Square Foot installed)</td><td>SFA</td><td>Retrofit</td><td>RemRate</td><td>-</td><td>RemRate</td><td>RemRate</td><td>PA TRM</td><td>RemRate</td><td>PA TRM</td><td>Measure Life</td><td></td><td>First Energy</td><td>PA Baseline</td><td><math display="inline">\$1.82/\mathrm{sq}</math> ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation</td></th<>	647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	$$1.82/\mathrm{sq}$ ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
41     Andmine LYP & KOP SNOW SNOW SNOW     50     No.     No.    <	648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	$22.9/\mathrm{sq}$ ft (from Navigant) multiplied by square footage estimate ; EE saturation based on homes with insulation
10         10         10         10         10         10.10	649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
10         10	650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM		First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
100       Part Indices       Part In	651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM		First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
Abs       A	652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM		MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
64       80       80       80       80       80       80       800	653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report		First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
Matrix	654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
6.66       8.76       8.76       8.76       8.76       8.76       9.770       8.76       9.770       8.767       9.770<	655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM		GDS Adjustment	First Energy	PA Baseline	
61       Inclusione Ro to RD NG	656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
6.68       Aric Invaluiose A0e A38 (Cost Per Square Foor installed)       SPA       Rendka       L       Rendka       PA TRM       Rendka	657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	
669       Aric Insulation Ro to Ro 0 (code PC square Foot installed)       SPA       Ren	658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	
660       Atten subation - R0 to R-00 (coor Per Square Foot installed)       SPA       Rem	659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	
601Wall Insulation - R0 to R11 (cost Per Square Foot Installed)SFARetroitRem, Ret $i$ Rem, RatePA TRMPA TRMPA TRMPA TRMPirst EnergyPirst E	660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate
Out       Wain instandaria vol 00 VP (Vol Per Square Pool instance)       SPA       Reining       Principal       Prinst Energy       Prinst Energy       <	661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM		First Energy	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate
663ENERGY STAR WindowsSFARCBRCBRemRate $2$ RemRatePA TRMRemRatePA TRMNID-XIT.TRMFirst EnergyPA Baseline\$325 per 100 square feet of windows multiplied by square footage664Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)SFARemRate $2$ RemRatePA TRMRemRatePA TRMMID-XIT.TRMFirst EnergyPA Baseline\$325 per 100 square feet of windows multiplied by square footage estimate665Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)SFARemRate $2$ RemRatePA TRMRemRatePA TRMRemRatePA TRMSecond666Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)SFARemRate $2$ RemRatePA TRMRemRatePA TRMRemRatePA TRMSecondSecondSecondSecondSecond666Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)SFARemRate $2$ RemRatePA TRMRemRatePA TRMRemRatePA TRMRemRatePA TRMSecondSecondSecondSecondSecondSecondRemRatePA TRMRemRatePA TRMRemRatePA TRMNID-XIT.TRMFirst EnergyPA Baseline\$1.55/sq ft (from Navigant) multiplied by square footage estimate665Floor Insulation - R0 to R-19 (Cost per typical single-family home)SFARemRate $2$ RemRatePA TRMRemRatePA TRMRemRatePA TRMRemRatePA TRMRemRateP	662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011,	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
64       For Insulation - R0 to R-13 (Cost Per Square Foot Installed)       SP.       Renk       Renk       PA TRM	663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM			First Energy	PA Baseline	
665       Poor Insulation - R0 to R-19 (Cost Per Square Foot Installed)       SP.       Ren, Ren, Ren, Ren, Ren, Ren, Ren, Ren,	664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report		First Energy	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate
660       HVAC Duct Sealing (Cost per typical single-family home)       SFA       Renf       RemRate       PA TRM       RemRate       PA TRM       PA TRM       GDS Adjustment       First Energy       PA Baseline       PA Baseline         667       Air Sealing (cost per sfollwing space for a typical multi-family home)       MF       RemRate       a       RemRate       PA TRM       RemRate       PA TRM       GDS Adjustment       First Energy       PA Baseline       PA Baseline       So.42/sq ft (from Navigant) multiplied by square footage estimate	665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate
667 Air Sealing (cost per sf of living space for a typical multi-family home) MF Renormal Renormation and the state of the	666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	GDS Adjustment	First Energy	PA Baseline	
	667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life		First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate

668 W	Vall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate		RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011,	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
	Vall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate		RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	First Energy Navigant 2011,	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	First Energy MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
671 H	IVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
672 A	ir Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
673 W	Vall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate
	Vall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	
675 E	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
676 H	IVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
677 A	ir Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate
678 W	Vall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate
679 W	Vall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate
680 E	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	First Energy	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
681 H	IVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	First Energy	PA Baseline	
700 H	rogrammable Thermostat (ASHP)	SFD	Retrofit	RemRate		REMRate	REMRate/TRM	*See CF	REMRate/T	*See CF	PA TRM	Home Depot	First Energy	PA Baseline	
	hir Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate		RemRate	RemRate	Note 1 PA TRM	RM RemRate	Note 1 PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
	ir Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
704 A	ir Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
705 G	SSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
706 D	Ductless Mini-Split Heat Pumps	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	First Energy	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiencg%20%20HNAL%20.pdf
707 G 708 G	Ground Source Heat Pumps (GSHP) Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD SFD	ROB	RemRate RemRate		REMRate REMRate	REMRate REMRate	PA TRM PA TRM	REMRate REMRate	PA TRM PA TRM	PA TRM PA TRM	PPL(email) Navigant 2011	First Energy First Energy	PA Baseline PA Baseline	
	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM PA TRM	REMRate	PA TRM PA TRM	PA TRM PA TRM	Navigant 2011	First Energy	PA Baseline PA Baseline	
710 H	IVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM MID-	Home Depot	First Energy	PA Baseline	
711 Fu	urnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
712 Pr	rogrammable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
713 Fu	urnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
714 R	toom AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
715 R	toom AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
716 Pr	rogrammable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/T RM	*See CF Note 1	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
717 A	ir Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
	tir Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
719 A	tir Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
720 G	SSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
	Ductless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by	First Energy	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINALI%20.pdf
721 D												Northeast Energy Efficiency Partnerships			20163/02011916/02011164169/02070201164112/0204pti

723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons) HVAC Tune Up (Cooling Season Only Tune Up)	SFA		RemRate	-	REMRate REMRate	REMRate REMRate	PA TRM PA TRM	REMRate REMRate	PA TRM PA TRM	PA TRM PA TRM		First Energy First Energy	PA Baseline PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	PA TRM		PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS	First Energy	First Energy	PA Baseline	
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/T RM	*See CF Note 1	PA TRM	EnergyStar 2011 Savings and Costs Report	First Energy	PA Baseline	
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	RemRate	PA TRM	PA TRM	DEER database	First Energy	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 oer ton) plus \$250 premium for desuperheater
736	Duetless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	First Energy	PA Baseline	eost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiencg%20%20FINAL%20.pdf
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	First Energy	PA Baseline	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	First Energy	PA Baseline	
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	First Energy	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	First Energy	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	First Energy	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS	First Energy	First Energy	PA Baseline	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
800 801	Whole House	ares	Retrofit	RemRate		Vermont	Vermont TRM	GDS	Vermont	GDS	PA TRM	Vermont TRM	<b>P</b> - <b>P</b>	GDS Estimate	
	Direct (Real Time) Feedback	SFD			-	TRM		estimate GDS	TRM	estimate GDS		Communication	First Energy	0.000	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	estimate GDS	Opower Vermont	estimate GDS	PA TRM	with Opower	First Energy	GDS Estimate	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate	TRM	estimate	PA TRM	Vermont TRM Communication	First Energy	GDS Estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	GDS GDS	Opower Vermont	estimate	PA TRM	with Opower	First Energy	GDS Estimate	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	TRM	estimate GDS	PA TRM	Vermont TRM	First Energy	GDS Estimate	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	GDS estimate GDS	Opower Vermont	GDS estimate GDS	PA TRM	Communication with Opower	First Energy	GDS Estimate	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	TRM	Vermont TRM	estimate	TRM	estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS	Opower	GDS	PA TRM	Communication with Opower	First Energy	GDS Estimate	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM		First Energy	GDS Estimate	
					_	TKM		estimate	1 KM	esumate					

818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	First Energy	GDS Estimate	
900	New Construction Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
905	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	Bellomy 2010 Residential Saturation Study / GDS Estimate	GDS Estimate	

Amazon: Retail prices derived from Amazon's website Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report

Best Buy: Retail prices derived from Best Buy's website

Bing.com: Retail prices derived from bing.com search results Codes and Standards Enhancement Initiative

CT Lighting CF Report: Connecticut Lighting Coincidence Factor Report

DEER database: California database of Energy Efficiency Resources

EnergyStar: government-backed website that helps protect the environment through superior energy efficiency EnergyStar 2011 Savings and Costs

EnergyStar Calculator: service provided by EnergyStar to help estimate savings, useful life, and cost

EnergyStar Louistons Report EnergyStar Penetration Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010)

First Energy: First Energy Saturation Study

GDS: GDS Associates Calculation/Assumption. See measure-specific notes.

GDS Estimate: Relied on industry experience and professional judgement due to lack of available primary researcha at the state/regional level. GDS Measure Life Report: SPWG and GDS's document of a set of measure life values for selected measures

Google.com: Retail prices derived from Google Shopping

Home Depot: Retail prices derived from Home Depot's website

LOWES: Retail prices derived from Lowe's website. MID-ATL TRM: Mid-Atlantic Technical Reference Manual. Version 2.0

Navigant 2011: describes methods and results of ICS, commissioned by the EM&V Forum Research Subcommittee to update incremental costs for measures

Opower: information used for calculating indirect feedback Ohio TRM: Ohio Technical Reference Manual

PA Baseline: Pennsylvania Baseline study, conducted by GDS

PA TRM: Pennsylvania Technical Reference Manual PA TRM / Ohio TRM: Pennsylvania Technical Reference Manual / Ohio Technical Reference Manual PECO 2011: data calculated from PECO's residential survey

PECO email: correspondence with representative(s) at PECO

PPL email: correspondence with representative(s) at PPL. PPL Quarterly Report: documents progress and effectiveness of EE&C accomplishments for PPL through end of PY3, Quarter 2

REM/Rate: Building Energy Modeling Software. Prototype homes were modeled based on average characterstics using the PECO Energy Baseline Study, February 2011

Stacenergy org: Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships The American Council for an Energy-Efficient Economy: Report on technical and policy issues relating to energy efficiency Vermont TRM: Vermont Technical Reference Manual

WPP: West Penn Power Saturation Survey

Measure A Measure	Assumptions - PPL Measure Name Water Heating End Live	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC		% Elec. Savings		Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
100	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	51.0%	16.7%
	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14		Homes w/Electric Water Heater	51.0%	16.7%
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	51.0% 51.0%	16.7% 0.1%
104	Solar Water Heaters Heat Pump Water Heaters- 2.0 Energy Factor	SFD SFD	ROB ROB	-	-	2106.0 1914.0	0.378	1.000	0.578	1.000	14 14	\$8,164.00 \$925.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	51.0%	3.8%
105	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	51.0%	3.8%
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	51.0%	34.4%
108	Low Flow Showerheads- 1.5 GPM Low Flow Faucet Aerators	SFD	Retrofit Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9 12	\$20.00 \$2.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	81.6% 178.5%	57.6% 89.3%
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.030	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	51.0%	7.2%
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	45.1%	16.7%
	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	45.1%	16.7%
113	Efficient Electric Water Heaters- 0.95 Energy Factor Solar Water Heaters	SFA SFA	ROB ROB	-	-	217.0 2106.0	0.020 0.378	1.000	0.020	1.000	14 14	\$105.87 \$8.164.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	45.1% 45.1%	16.7%
114	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	1914.0	0.378	1.000	0.378	1.000	14	\$925.00	Homes w/Electric Water Heater	45.1%	3.8%
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	45.1%	3.8%
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	45.1%	34.4%
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	¥20.00	Homes w/Electric Water Heater	72.1%	57.6%
119 120	Low Flow Faucet Aerators Water Heater Task Wree	SFA SFA	Retrofit	-	-	61.0 97.0	0.056	1.000	0.056	1.000	12	\$2.00 \$50.00	Homes w/Electric Water Heater	157.7% 45.1%	89.3% 7.2%
120	Water Heater Tank Wrap Efficient Electric Water Heaters- 0.93 Energy Factor	ME	ROB	-	-	97.0	0.011	1.000	0.011	1.000	/ 14	\$50.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	45.1%	16.7%
121	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	175.0	0.012	1.000	0.012	1.000	14	\$99.31	Homes w/Electric Water Heater	72.2%	16.7%
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	72.2%	16.7%
	Solar Water Heaters	MF	ROB		-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	72.2%	0.0%
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	72.2%	3.8%
126	Heat Pump Water Heaters- 2.3 Energy Factor Electric Water Heater Pipe Insulation	MF	ROB Retrofit	-	-	2202.0 124.0	0.202	1.000	0.202	1.000	14	\$975.00 \$18.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	72.2%	3.8% 34.4%
	Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	115.4%	57.6%
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	252.5%	89.3%
130	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	72.2%	7.2%
200	Lighting Ceiling Fan with ENERGY STAR Light Fixture	SED	ROB			134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	147.1%	18.3%
201 202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.298	0.000	0.000	20	\$86.00	Homes with rightlights	91.3%	9.1%
	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8		Homes with nightlights	91.3%	9.1%
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	18.3%
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	18.3%
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB ROB	-	-	45.1	0.041	0.298	0.041	0.050	6 20	\$1.25 \$15.00	Homes with 100 Watt incandescent bulbs Homes with indoor fixtures	100.0%	18.3%
207 208	ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	31.7	0.030	0.050	0.030	0.050	20	\$15.00 \$20.00	Homes with indoor fixtures Homes with general service lamps	100.0%	18.3%
200	ENERGY STAR LEDs - Ochera Server Lamps	SFD	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	350.0%	18.3%
211	ENERGY STAR Torchieres	SFD	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	18.3%
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00	Homes with holiday lights	60.0%	16.7%
213	Residential Occupancy Sensors- 14 W CFL	SFD SFD	Retrofit Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00 \$18.00	Homes with occupancy sensors	0.0%	17.5%
214 215	Residential Occupancy Sensors 19 W CFL Residential Occupancy Sensors- 23 W CFL	SED	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	93.8%	35.8%
217	Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8		Homes with nightlights	91.3%	9.1%
218	LED Nightlight	SFA	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	91.3%	9.1%
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.024 0.029	0.298	0.024	0.050	6	\$1.25 \$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8% 35.8%
220 221	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA SFA	ROB	-	-	31.3 45.1	0.029	0.298	0.029	0.050	6	\$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	-	-	27.0	0.041	0.298	0.041	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with million fixtures Homes with general service lamps	100.0%	35.8%
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	35.8%
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	35.8%
226 227	ENERGY STAR Torchieres ENERGY STAR Holiday Lights	SFA	ROB ROB	-	-	60.4 10.6	0.066	0.050	0.066	0.050	10	\$25.00 \$20.00	Homes with torchieres Homes with holiday lights	100.0% 60.0%	35.8% 16.7%
227	ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL	SFA	ROB	-	-	10.6	0.000	0.000	0.000	0.000	10	\$20.00 \$18.00	Homes with holiday lights Homes with occupancy sensors	60.0%	16./%
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	57.1%	28.0%
232	Electroluminescent Nightlight LED Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20 \$1.00	Homes with nightlights	91.3% 91.3%	9.1% 9.1%
233	LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	22.0	0.000 0.024	0.000	0.000	0.000	6	\$1.00 \$1.25	Homes with nightlights Homes with 60 Watt incandescent bulbs	91.3%	9.1% 28.0%
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	28.0%
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.0%
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	28.0%
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	28.0%
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00 \$20.00	Homes with reflector lamps Homes with outdoor fixtures	100.0%	28.0% 28.0%
														100.0%	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres	MF	ROB	-	-									100.0%	28.0%
240 241	ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres ENERGY STAR Holiday Lights	MF MF MF	ROB ROB	-	-	60.4 10.6	0.066 0.000	0.050	0.066	0.050	10 10	\$25.00	Homes with holiday lights	100.0% 60.0%	28.0% 16.7%

Measure A	Assumptions - PPL	Home Type	ROB	Base Elec.	% Elec.	Annual Elec.	Per Unit Winter	Winter	Per Unit Summer	e	Useful	To anno 1		Base	EE
Measure	Measure Name	(SFA, SFD, MF)	vs. Retrofit vs. NC	Elec. Use (kWh)	% Elec. Savings	Savings (kWh)	Winter Demand Savings (kW)	Winter CF	Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
300	Appliances										_				
	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00 \$120.00	Homes with secondary refrigerators	36.5%	3.7%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement Energy Star top mount freezer without door ice	SFD	ROB	-	-	1059.0	0.013	1.000	0.013	1.000	13	\$120.00	Homes with secondary refrigerators Homes with top mount freezers without door ice	36.5% 28.6%	3.7% 23.8%
304	Energy Star top mount freezer without door ice	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	9.8%	23.8%
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	10.3%	23.8%
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	28.6%	23.8%
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	9.8%	23.8%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	12.6%	11.4%
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11	\$72.00	Homes with upright, automatic defrost freezers	12.6%	11.4%
310	Energy Star chest freezer	SFD SFD	ROB ROB	-	-	42.0 213.0	0.011	1.000	0.011	1.000	11	\$18.00 \$1.00	Homes with chest freezers	21.9% 53.4%	11.4% 85.3%
311	Energy Star dehumidifiers (35-45 pints/day) Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	136.0	0.010	0.136	0.010	0.136	12	\$1.00	Homes with dehumidifiers Homes with electric clothes drver	30.7%	85.3% 95.1%
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	224.0	0.040	1.000	0.040	1.000	10	\$250.00	Homes with clothes washer and electric heat	48.7%	33.1%
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	19.6%	33.1%
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	36.8%	41.7%
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	14.8%	41.7%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	128.0%	34.8%
318	Energy Star Exhaust Fans	SFD	ROB	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00	Homes with exhaust fans	100.0%	10.0%
319 320	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	229.0 1205.0	0.000	1.000	0.000	1.000	15	\$348.00 \$120.00	Homes with residential whole house fans	7.0%	9.1%
320	Refrigerator / Freezer Recycling and Replacement With a New Unit Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	8	\$120.00	Homes with secondary refrigerators Homes with secondary refrigerators	19.3%	3.7%
321	Energy Star top mount freezer without door ice	SFA	ROB		-	1059.0	0.332	1.000	0.013	1.000	13	\$120.00	Homes with secondary reingerators Homes with top mount freezers without door ice	27.9%	23.8%
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	9.5%	23.8%
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	10.0%	23.8%
	Energy Star top mount freezer with door ice	SFA	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	27.9%	23.8%
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	9.5%	23.8%
327	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	6.5%	11.4%
328 329	Energy Star upright with automatic defrost	SFA	ROB ROB	-	-	67.0 42.0	0.011	1.000	0.011	1.000	11	\$72.00 \$18.00	Homes with upright, automatic defrost freezers	6.5%	11.4%
329	Energy Star chest freezer Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	42.0	0.011 0.010	1.000	0.011	1.000	11 12	\$18.00 \$1.00	Homes with chest freezers Homes with dehumidifiers	11.3%	11.4% 85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	12	\$270.00	Homes with detunindness Homes with electric clothes dryer	33.2%	95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	42.0%	33.1%
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	29.4%	33.1%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	34.9%	41.7%
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	17.6%	41.7%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	116.0%	34.8%
337 338	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	SFA	ROB Retrofit	-	-	2.0 229.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0% 6.3%	9.1%
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	1205.0	0.000	0.620	0.000	0.620	15	\$348.00 \$120.00	Homes with residential whole house fans Homes with secondary refrigerators	6.3%	3.7%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB			1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	6.3%	3.7%
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	28.7%	23.8%
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	9.8%	23.8%
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	10.3%	23.8%
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	28.7%	23.8%
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	9.8%	23.8%
346 347	Energy Star upright with manual defrost	MF	ROB ROB	-	-	47.0	0.011	1.000	0.011	1.000	11	\$80.00 \$72.00	Homes with upright, manual defrost freezers	5.8%	11.4%
347	Energy Star upright with automatic defrost Energy Star chest freezer	MF	ROB	-	-	67.0 42.0	0.011 0.011	1.000	0.011 0.011	1.000	11	\$72.00 \$18.00	Homes with upright, automatic defrost freezers Homes with chest freezers	5.8%	11.4%
349	Energy Star dehumidifiers (35-45 pints/day)	ME	ROB	-	-	213.0	0.011	1.000	0.011	1.000	12	\$100	Homes with chest freezers	6.9%	85.3%
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB		-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with definitements Homes with electric clothes dryer	18.3%	95.1%
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	45.1%	33.1%
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and gas heat	10.3%	33.1%
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and electric heat	18.3%	41.7%
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	4.6%	41.7%
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	MF homes with room AC	207.4%	34.8%
356 357	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	MF	ROB Retrofit	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	10.0% 9.1%
357 400	Electronics	MIP	Retfort	-	-	229.0	0.000	1.000	0.000	1.000	13	<i>q</i> .946.00	Tomes with residential whole house rans	0.070	9.170
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	138.5%	49.0%
402	ENERGY STAR Copier	SFD	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	4.2%	82.7%
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	3.6%	6.0%
404	ENERGY STAR Monitor	SFD	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	76.5%	72.3%
405	ENERGY STAR Multifunction	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	53.2%	63.3%
406	ENERGY STAR Printer	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	29.4%	69.7%
407	>50 in <50 in	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00 \$1.00	Homes with a television	95.6% 156.1%	58.0%
408	<50 m Smart Strip Plug Outlets	SFD	ROB Retrofit	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00 \$15.00	Homes with a television Homes with Powerstrips	156.1%	58.0%
409	ENERGY STAR Computer	SFA	ROB	-	-	77.0	0.020	1.000	0.020	1.000	4	\$1.00	Homes with a computer	120.6%	49.0%
	ENERGY STAR Conjure	SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	1.7%	82.7%
411															6.0%
412	ENERGY STAR Fax Machine ENERGY STAR Monitor	SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	2.5%	6.0%

Measure A Measure 414	ssumptions - PPL Measure Name ENERGY STAR Multifunction	Home Type (SFA, SFD, MF) SFA	ROB vs. Retrofit vs. NC ROB	Base Elec. Use (kWh)	% Elec. Savings	Savinge	Per Unit Winter Demand Savings (kW) 0.011	Winter CF	Per Unit Summer Demand Savings (kW) 0.011	Summer CF 1.000	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation 45.0%	EE Saturation
414 415	ENERGY STAR Multifunction ENERGY STAR Printer	SFA	ROB	-	-	26.0	0.011 0.004	1.000	0.011 0.004	1.000	6	\$1.00 \$1.00	Homes with a multifunction printer Homes with a printer	45.0%	63.3%
415	>50 in	SFA	ROB	-	-	20.0 481.0	0.004	0.280	0.004	0.280	15	\$1.00	Homes with a television	29.0% 85.3%	58.0%
417	<50 in	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	136.1%	58.0%
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
419	ENERGY STAR Computer	MF	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	81.7%	49.0%
420	ENERGY STAR Copier	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	1.1%	82.7%
421	ENERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	0.6%	6.0%
422	ENERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	46.3%	72.3%
423 424	ENERGY STAR Multifunction ENERGY STAR Printer	MF	ROB	-	-	78.0 26.0	0.011	1.000	0.011	1.000	5	\$1.00 \$1.00	Homes with a multifunction printer Homes with a printer	30.3%	63.3%
424	>50 in	ME	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	71.4%	58.0%
426	<50 in	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	107.4%	58.0%
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
500	Pool														
501	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	14.9%	10.0%
502	Variable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	14.9%	10.0%
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	4.6%	10.0%
504 505	Variable Speed Pool Pumps	SFA MF	ROB	-	-	918.0 530.0	0.621 1.129	0.000	0.621 1.129	0.270 0.270	10	\$750.00 \$175.00	Homes with a pool Homes with a pool	4.6% 2.3%	10.0%
505	High Efficiency Two-Speed Pool Pump Variable Speed Pool Pumps	MF	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	2.3%	10.0%
600	HVAC (Envelope)	WI1 <sup>-</sup>	ROB	-	-	918.0	0.021	0.000	0.021	0.270	10	\$750.00	fiones with a poor	2.370	10.076
601 .	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	16852	12.09%	2037.0	0.000	0.700	0.100	0.700	15	\$742.56	Detached SF existing homes with electric heat and Central AC	18.4%	72.9%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	20579	18.11%	3727.0	0.800	0.700	0.300	0.700	25	\$1,635.40	Detached SF existing homes with electric heat and Central AC	18.4%	86.7%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	20579	22.68%	4668.0	1.000	0.700	0.400	0.700	25	\$2,174.64	Detached SF existing homes with electric heat and Central AC	18.4%	86.7%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	20579	23.65%	4866.0	1.100	0.700	0.400	0.700	25	\$2,811.12	Detached SF existing homes with electric heat and Central AC	18.4%	86.7%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	16852	6.76%	1139.0	0.300	0.700	0.100	0.700	25	\$2,174.64	Detached SF existing homes with electric heat and Central AC	18.4%	45.0%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	25038	32.69%	8186.0	4.400	0.700	0.400	0.700	25	\$3,945.42	Detached SF existing homes with electric heat and Central AC	18.4%	86.1%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	25038	36.98%	9258.0	5.000	0.700	0.500	0.700	25	\$5,003.25	Detached SF existing homes with electric heat and Central AC	18.4%	86.1%
608	ENERGY STAR Windows	SFD	ROB	16852	7.48%	1261.0	0.700	0.700	0.100	0.700	20	\$604.50	Detached SF existing homes with electric heat and Central AC	18.4%	88.2%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	16852	8.25%	1391.0	0.100	0.700	0.000	0.700	25	\$1,219.92	Detached SF existing homes with electric heat and Central AC	18.4%	49.8%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	16852	9.45%	1592.0	0.100	0.700	0.000	0.700	25	\$1,547.00	Detached SF existing homes with electric heat and Central AC	18.4%	49.8%
611 612	HVAC Duct Sealing (Cost per typical single-family home) Air Sealing (cost per sf of living space for a typical single-family home)	SFD SFD	Retrofit Retrofit	16852 2520	11.92% 1.47%	2009.0 37.0	4.900 0.700	0.700	0.700 0.100	0.700	14 15	\$497.62 \$742.56	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	18.4% 30.8%	58.3% 72.9%
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	2776	9.22%	256.0	0.000	0.700	0.400	0.700	25	\$1,635.40	Detached SF existing homes with non-electric heat and Central AC	30.8%	86.7%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	2776	11.38%	316.0	0.000	0.700	0.400	0.700	25	\$2,174.64	Detached SF existing homes with non-electric heat and Central AC	30.8%	86.7%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	2776	11.85%	329.0	0.000	0.700	0.400	0.700	25	\$2,811.12	Detached SF existing homes with non-electric heat and Central AC	30.8%	86.7%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	2520	2.90%	73.0	0.000	0.700	0.000	0.700	25	\$2,174.64	Detached SF existing homes with non-electric heat and Central AC	30.8%	45.0%
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	2972	15.21%	452.0	0.000	0.700	0.500	0.700	25	\$3,945.42	Detached SF existing homes with non-electric heat and Central AC	30.8%	86.1%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	2972	17.19%	511.0	0.000	0.700	0.500	0.700	25	\$5,003.25	Detached SF existing homes with non-electric heat and Central AC	30.8%	86.1%
619	ENERGY STAR Windows	SFD	ROB	2520	-1.47%	-37.0	0.000	0.700	0.000	0.700	20	\$604.50	Detached SF existing homes with non-electric heat and Central AC	30.8%	88.2%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	2520	-2.38%	-52.0	0.000	0.700	0.000	0.700	25 25	\$1,219.92 \$1,547.00	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	30.8%	49.8%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	2520	10.71%	270.0	0.000	0.700	0.700	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	30.8%	58.3%
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	2320	15.47%	3264.0	1.100	0.700	0.200	0.580	14	\$742.56	Detached SF existing homes with horeectife heat and central AC Detached SF existing homes with baseboard heat and room AC	8.9%	72.9%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	28016	24.70%	6919.0	2.500	0.700	0.200	0.580	25	\$1,635.40	Detached SF existing homes with baseboard heat and room AC	8.9%	86.7%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	28016	30.63%	8580.0	3.100	0.700	0.900	0.580	25	\$2,174.64	Detached SF existing homes with baseboard heat and room AC	8.9%	86.7%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	28016	31.85%	8924.0	3.300	0.700	0.900	0.580	25	\$2,811.12	Detached SF existing homes with baseboard heat and room AC	8.9%	86.7%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	21097	9.50%	2005.0	0.800	0.700	0.200	0.580	25	\$2,174.64	Detached SF existing homes with baseboard heat and room AC	8.9%	45.0%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	33678	37.36%	12581.0	4.400	0.700	0.500	0.580	25	\$3,945.42	Detached SF existing homes with baseboard heat and room AC	8.9%	86.1%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	33678	42.08%	14172.0	5.000	0.700	0.600	0.580	25	\$5,003.25	Detached SF existing homes with baseboard heat and room AC	8.9%	86.1%
630 631	ENERGY STAR Windows Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	ROB Retrofit	21097	9.17%	1935.0 2766.0	0.700	0.700	0.100	0.580	20	\$604.50 \$1.219.92	Detached SF existing homes with baseboard heat and room AC Detached SF existing homes with baseboard heat and room AC	8.9%	88.2% 49.8%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	21097	14.94%	3151.0	1.100	0.700	0.100	0.580	25	\$1,219.92	Detached SF existing homes with baseboard heat and room AC	8.9%	49.8%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	21097	0.00%	0.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing homes with baseboard heat and room AC	8.9%	58.3%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	11520	13.54%	1560.0	0.000	0.700	0.100	0.700	15	\$646.80	Attached SF existing homes with electric heat and Central AC	24.6%	72.9%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	14908	22.73%	3388.0	2.200	0.700	0.600	0.700	25	\$1,424.50	Attached SF existing homes with electric heat and Central AC	24.6%	86.7%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	14908	28.40%	4234.0	2.700	0.700	0.700	0.700	25	\$1,894.20	Attached SF existing homes with electric heat and Central AC	24.6%	86.7%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	14908	29.57%	4408.0	2.900	0.700	0.800	0.700	25	\$2,448.60	Attached SF existing homes with electric heat and Central AC	24.6%	86.7%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	11520	8.85%	1020.0	0.700	0.700	0.200	0.700	25	\$1,894.20	Attached SF existing homes with electric heat and Central AC	24.6%	45.0%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	14140	18.53%	2620.0	1.600	0.700	0.200	0.700	25	\$3,683.22	Attached SF existing homes with electric heat and Central AC	24.6%	86.1%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFA	Retrofit ROB	14140	20.93%	2960.0 2960.0	1.800	0.700	0.200	0.700	25 20	\$4,670.75 \$811.85	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	24.6%	86.1% 88.2%
					23.09%			0.700	0.100	0.700	20	3011.8D	Attached or existing nomes with electric heat and Central AC	24.0%	0.012 / 1
641					1.03%	228.0	0.000	0.700	0.000	0.700	25	\$1.062.60	Attached SE existing homes with electric heat and Central AC	24.6%	49.8%
	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA SFA	Retrofit	11787 11787	1.93% 2.27%	228.0 267.0	0.000	0.700	0.000	0.700	25 25	\$1,062.60 \$1,347.50	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	24.6% 24.6%	49.8% 49.8%

Measure A	assumptions - PPL														
		Home Type	ROB	Base		Annual Elec.	Per Unit		Per Unit Summer						
Measure	Measure Name	(SFA, SFD,	vs. Retrofit	Elec. Use	% Elec. Savings	Savinos	Winter Demand	Winter CF	Demand Savings	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
<i></i>		MF)	vs. NC	· ·	0.550/	15.0	Savings (kW)	0.500	(kW)	0.500	15	<b>A</b> ( 1 ( 00)		22.00/	70.00/
645 646	Air Sealing (cost per sf of living space for a typical single-family home) Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA SFA	Retrofit Retrofit	1949 2247	0.77%	15.0 298.0	0.000	0.700	0.100	0.700	15 25	\$646.80 \$1,424.50	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	22.0%	72.9% 86.7%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	2247	16.38%	368.0	0.000	0.700	0.800	0.700	25	\$1,894.20	Attached SF existing homes with non-electric heat and Central AC	22.0%	86.7%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	2247	17.00%	382.0	0.000	0.700	0.800	0.700	25	\$2,448.60	Attached SF existing homes with non-electric heat and Central AC	22.0%	86.7%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1949	4.31%	84.0	0.000	0.700	0.200	0.700	25	\$1,894.20	Attached SF existing homes with non-electric heat and Central AC	22.0%	45.0%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	2044	4.65%	95.0	0.000	0.700	0.200	0.700	25	\$3,683.22	Attached SF existing homes with non-electric heat and Central AC	22.0%	86.1%
651 652	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFA SFA	Retrofit ROB	2044 1949	5.23% -4.31%	-84.0	0.000	0.700	0.200	0.700	25 20	\$4,670.75 \$811.85	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	22.0%	86.1% 88.2%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1949	-4.77%	-93.0	0.000	0.700	0.100	0.700	20	\$1.062.60	Attached SF existing homes with non-electric heat and Central AC	22.0%	49.8%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1949	-5.54%	-108.0	0.000	0.700	0.000	0.700	25	\$1,347.50	Attached SF existing homes with non-electric heat and Central AC	22.0%	49.8%
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1949	12.16%	237.0	0.000	0.700	0.300	0.700	14	\$440.64	Attached SF existing homes with non-electric heat and Central AC	22.0%	58.3%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	11270	22.87%	2577.0	0.900	0.700	0.400	0.580	15	\$646.80	Attached SF existing homes with baseboard heat and room AC	8.5%	72.9%
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	13847	38.64%	5351.0	2.200	0.700	0.300	0.580	25	\$1,424.50	Attached SF existing homes with baseboard heat and room AC	8.5%	86.7%
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	13847	48.00%	6647.0	2.700	0.700	0.800	0.580	25	\$1,894.20	Attached SF existing homes with baseboard heat and room AC	8.5%	86.7%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	13847	49.93% 13.87%	6914.0	2.800	0.700	0.800	0.580	25	\$2,448.60	Attached SF existing homes with baseboard heat and room AC	8.5%	86.7%
	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA SFA	Retrofit	11270 18024	13.8/%	1563.0 4177.0	0.600	0.700	0.500	0.580	25 25	\$1,894.20 \$3,683.22	Attached SF existing homes with baseboard heat and room AC Attached SF existing homes with baseboard heat and room AC	8.5% 8.5%	45.0% 86.1%
												10,000.22			000077
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	18024	26.10%	4704.0	1.900	0.700	0.200	0.580	25	\$4,670.75	Attached SF existing homes with baseboard heat and room AC	8.5%	86.1%
663 664	ENERGY STAR Windows	SFA SFA	ROB	11270 11270	20.73%	2336.0 1421.0	0.900	0.700	0.400	0.580	20 25	\$811.85 \$1.062.60	Attached SF existing homes with baseboard heat and room AC	8.5% 8.5%	88.2% 49.8%
	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	11270	14.69%	1655.0	0.600	0.700	-0.300	0.580	25	\$1,062.60	Attached SF existing homes with baseboard heat and room AC Attached SF existing homes with baseboard heat and room AC	8.5%	49.8%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	11270	0.00%	0.0	0.000	0.700	0.000	0.580	14	\$440.64	Attached SF existing homes with baseboard heat and room AC	8.5%	58.3%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	2960	14.76%	437.0	0.000	0.700	0.000	0.700	15	\$281.40	MF existing homes with electric heat and central AC	18.8%	72.9%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	3283	9.84%	323.0	0.300	0.700	0.100	0.700	25	\$1,214.40	MF existing homes with electric heat and central AC	18.8%	86.1%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	3283	11.09%	364.0	0.300	0.700	0.100	0.700	25	\$1,540.00	MF existing homes with electric heat and central AC	18.8%	86.1%
670 671	ENERGY STAR Windows HVAC Duct Sealing (Cost per typical multi-family home)	MF MF	ROB Retrofit	2960 2960	18.51% 19.49%	548.0 577.0	0.400	0.700	0.000	0.700	20 14	\$380.25 \$223.20	MF existing homes with electric heat and central AC MF existing homes with electric heat and central AC	18.8% 18.8%	88.2% 58.3%
671	Air Sealing (cost per typical multi-tamily nome) Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	2960	3.21%	32.0	0.900	0.700	0.000	0.700	14	\$223.20 \$281.40	MF existing homes with non-electric heat and central AC MF existing homes with non-electric heat and central AC	18.8%	58.3% 72.9%
	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	1011	1.48%	15.0	0.000	0.700	0.000	0.700	25	\$1.214.40	MF existing homes with non-electric heat and central AC	18.8%	86.1%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	1011	1.68%	17.0	0.000	0.700	0.000	0.700	25	\$1,540.00	MF existing homes with non-electric heat and central AC	18.8%	86.1%
675	ENERGY STAR Windows	MF	ROB	996	-2.21%	-22.0	0.000	0.700	0.000	0.700	20	\$380.25	MF existing homes with non-electric heat and central AC	18.8%	88.2%
676 677	HVAC Duct Sealing (Cost per typical multi-family home)	MF MF	Retrofit	996 3037	15.16% 23.41%	151.0 711.0	0.000	0.700	0.100	0.700	14 15	\$223.20 \$281.40	MF existing homes with non-electric heat and central AC	18.8% 17.6%	58.3% 72.9%
678	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	3527	23.41%	490.0	1.200	0.700	0.100	0.580	25	\$281.40 \$1.214.40	MF existing homes with baseboard heat and room AC	17.6%	72.9% 86.1%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	3527	15.62%	551.0	0.200	0.700	0.000	0.580	25	\$1,540.00	MF existing homes with baseboard heat and room AC	17.6%	86.1%
680	ENERGY STAR Windows	MF	ROB	3037	30.82%	936.0	0.400	0.700	0.100	0.580	20	\$380.25	MF existing homes with baseboard heat and room AC	17.6%	88.2%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	3037	0.00%	0.0	0.000	0.700	0.000	0.580	14	\$223.20	MF existing homes with baseboard heat and room AC	17.6%	58.3%
700	HVAC (Equipment/Controls)														
	Programmable Thermostat (ASHP)	SFD	Retrofit	16529	1.95%	323.0	0.000	0.700	0.000	0.700	15	\$19.00	Detached SF homes with heat pumps	11.6%	27.0%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	16852 13656	9.43% 5.32%	1589.0 726.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	11.6%	70.2% 20.6%
703 704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD SFD	ROB ROB	13656	7.61%	1039.0	0.000	0.700	0.200	0.700	12	\$822.00 \$1.644.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	11.6%	20.6%
704	GSHP w/ Desuperheater	SFD	ROB	13656	19.54%	2668.0	0.000	0.700	0.000	0.700	30	\$1,044.00	Detached SF homes with heat pumps	11.6%	20.6%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	13656	32.27%	4407.0	8.400	0.700	1.400	0.700	15	\$1,200.00	Detached SF homes with heat pumps	11.6%	20.6%
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	13656	13.06%	1783.0	0.000	0.700	-0.300	0.700	30	\$10,700.00	Detached SF homes with heat pumps	11.6%	20.6%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	1802	11.38%	205.0	0.000	0.000	0.200	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	48.7%	20.6%
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	1802	15.98%	288.0	0.000	0.000	0.300	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	48.7%	20.6%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	2519	9.96%	251.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	48.7%	16.3%
711	Furnace High Efficiency Fan	SFD	Retrofit	2520	17.70%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	66.8%	10.0%
712	Programmable Thermostat (CAC) Furnace Whistle	SFD SFD	Retrofit	2520	2.14%	54.0 119.0	0.000	0.000	0.000	0.700	15 15	\$19.00 \$2.00	Detached SF existing homes with Central AC Detached SF existing homes with non-electric furnace	48.7% 66.8%	27.0%
713	Furnace Whistle Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	Retrofit	353	- 100.00%	353.0	0.050	0.000	0.050	0.580	15	\$2.00 \$60.00	Detached SF existing homes with non-electric turnace Detached SF homes with room AC	66.8% 128.0%	10.0% 34.8%
	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$60.00	Detached SF homes with room AC	128.0%	34.8%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	11520	1.77%	204.0	0.000	0.700	0.000	0.700	15	\$19.00	Attached SF existing homes with heat pump	16.0%	29.3%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	11520	4.82%	555.0	0.000	0.700	0.200	0.700	7	\$100.00	Attached SF existing homes with heat pump	16.0%	70.2%
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	9365	8.59%	804.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	16.0%	20.6%
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	9365	7.55%	707.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	16.0%	20.6%
720	GSHP w/ Desuperheater	SFA	ROB	9365	33.68%	3154.0	0.000	0.700	0.500	0.700	30	\$11,300.00	Attached SF existing homes with heat pump	16.0%	20.6%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	9365	31.63%	2962.0	3.800	0.700	0.500	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	16.0%	20.6%
	Ground Source Heat Pumps (GSHP)	SFA	ROB	9365	26.63%	2494.0	0.000	0.700	0.200	0.700	30 14	\$10,700.00 \$1.333.00	Attached SF existing homes with heat pump	16.0% 46.2%	20.6%
722	Control AC (Equipment Only) CEED 42 CEED 45 (2.5.	CDA													
722 723 724	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons) Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA SFA	ROB ROB	1394 1394	11.41% 16.00%	223.0	0.000	0.000	0.100	0.700	14	\$1,535.00 \$2,407.00	Attached SF homes with Central AC Attached SF homes with Central AC	46.2%	20.6%

Measure	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	(kWh)	% Elec. Savings	Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1754	11.12%	195.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	46.2%	16.0%
726	Furnace High Efficiency Fan	SFA	Retrofit	2613	17.07%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	64.7%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	13847	1.47%	204.0	0.000	0.000	0.300	0.700	15	\$19.00	Attached SF homes with Central AC	46.2%	29.3%
728	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	64.7%	10.0%
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$60.00	Attached SF homes with room AC	116.0%	34.8%
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$60.00	Attached SF homes with room AC	116.0%	34.8%
731	Programmable Thermostat (ASHP)	MF	Retrofit	3016	1.86%	56.0	0.000	0.700	0.000	0.700	15	\$19.00	MF homes with heat pump	9.1%	23.2%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	2960	7.94%	235.0	0.000	0.700	0.000	0.700	7	\$100.00	MF homes with heat pump	9.1%	70.2%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	2426	5.48%	133.0	0.000	0.700	0.100	0.700	12	\$822.00	MF homes with heat pump	9.1%	20.6%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	2426	7.79%	189.0	0.000	0.700	0.100	0.700	12	\$1,644.00	MF homes with heat pump	9.1%	20.6%
735	GSHP w/ Desuperheater	MF	ROB	2426	-18.38%	-446.0	0.000	0.700	0.200	0.700	30	\$11,300.00	MF homes with heat pump	9.1%	20.6%
736	Ductless Mini-Split Heat Pumps	MF	ROB	2426	22.22%	539.0	1.100	0.700	0.200	0.700	15	\$1,200.00	MF homes with heat pump	9.1%	20.6%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	2426	-33.10%	-803.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	9.1%	20.6%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	2676	3.03%	81.0	0.000	0.000	0.100	0.700	14	\$1,333.00	MF homes with Central AC	36.6%	20.6%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	2676	4.26%	114.0	0.000	0.000	0.100	0.700	14	\$2,407.00	MF homes with Central AC	36.6%	20.6%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	996	10.04%	100.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	36.6%	13.6%
741	Furnace High Efficiency Fan	MF	Retrofit	1108	40.25%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	54.9%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	996	8.53%	85.0	0.000	0.000	0.000	0.700	15	\$19.00	MF existing homes with central AC	36.6%	23.2%
743	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	54.9%	10.0%
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	353	100.00%	353.0	0.000	0.000	1.103	0.580	4	\$60.00	MF homes with room AC	207.4%	34.8%
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$60.00	MF homes with room AC	207.4%	34.8%
800	Whole House				1101112		0.000			0.000		100000			0.0075
801	Direct (Real Time) Feedback	SFD	Retrofit	27637	6.15%	1699.7	1.370	0.700	1.370	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	18.4%	0.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	27637	2.23%	616.3	0.497	0,700	0.497	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	18.4%	8.3%
803	Direct (Real Time) Feedback	SFD	Retrofit	6679	6.15%	410.8	0.331	0.700	0.331	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	30.8%	0.0%
804	Indirect Feedback (O-Power)	SED	Retrofit	6679	2.23%	148.9	0.120	0.700	0.120	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	30.8%	8.3%
805	Direct (Real Time) Feedback	SFD	Retrofit	31619	6.15%	1944.6	1.567	0.700	1.567	0.580	3	\$140.00	Detached SF existing homes with hon-electric near and central AC	8.9%	0.0%
805	Indirect (Real Time) Feedback	SFD	Retrofit	31619	2.23%	705.1	0.568	0.700	0.568	0.580	2	\$140.00	Detached SF existing homes with baseboard heat and room AC	8.9%	8.3%
800	Direct (Real Time) Feedback	SEA	Retrofit	21404	6.15%	1316.3	1.061	0.700	1.061	0.380	3	\$22.50	Attached SF existing homes with electric heat and Central AC	24.6%	0.0%
001						477.3	0.385	011.00	0.385	000	v.	\$140.00 \$22.50		=	0.07.
808	Indirect Feedback (O-Power)	SFA	Retrofit	21404 5496	2.23% 6.15%	338.0		0.700		0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	24.6%	8.3%
809	Direct (Real Time) Feedback		Retrofit	0.000	0.1072	338.0	0.272		0.272				Attached SF existing homes with non-electric heat and Central AC		0.074
810	Indirect Feedback (O-Power)	SFA	Retrofit	5496	2.23%		0.099	0.700	0.099	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	22.0%	8.3%
811	Direct (Real Time) Feedback	SFA	Retrofit	23749	6.15%	1460.6	1.177	0.700	1.177	0.580	3	\$140.00	Attached SF existing homes with baseboard heat and room AC	8.5%	0.0%
812	Indirect Feedback (O-Power)	SFA	Retrofit	23749	2.23%	529.6	0.427	0.700	0.427	0.580	2	\$22.50	Attached SF existing homes with baseboard heat and room AC	8.5%	8.3%
813	Direct (Real Time) Feedback	MF	Retrofit	9896	6.15%	608.6	0.490	0.700	0.490	0.700	3	\$140.00	MF existing homes with electric heat and central AC	18.8%	0.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	9896	2.23%	220.7	0.178	0.700	0.178	0.700	2	\$22.50	MF existing homes with electric heat and central AC	18.8%	8.3%
815	Direct (Real Time) Feedback	MF	Retrofit	3018	6.15%	185.6	0.150	0.700	0.150	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	18.8%	0.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	3018	2.23%	67.3	0.054	0.700	0.054	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	18.8%	8.3%
817	Direct (Real Time) Feedback	MF	Retrofit	9963	6.15%	612.7	0.494	0.700	0.494	0.580	3	\$140.00	MF existing homes with baseboard heat and room AC	17.6%	0.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	9963	2.23%	222.2	0.179	0.700	0.179	0.580	2	\$22.50	MF existing homes with baseboard heat and room AC	17.6%	8.3%
900	New Construction														
901	Residential New Construction-Tier 1	SFD	NC	13887	15.00%	2083.1	1.035	0.700	0.435	0.700	15		New construction detached SF homes w/ electric heat and Central AC	39.0%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	13887	30.00%	4166.1	2.070	0.700	0.870	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	39.0%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	5973	15.00%	896.0	0.075	0.700	0.330	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central AC	53.0%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	5973	30.00%	1791.9	0.150	0.700	0.090	0.700	15	\$5,628.00	New construction detached SF homes w/ non-electric heat and Central AC	53.0%	0.0%
905	Residential New Construction Tier 1	MF	NC	7877	15.00%	1181.6	0.300	0.700	0.225	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	49.0%	0.0%
906	Residential New Construction Tier 2	MF	NC	7877	30.00%	2363.1	0.600	0.700	0.450	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	49.0%	0.0%
907	Residential New Construction Tier 1	MF	NC	2900	15.00%	435.0	0.045	0.700	0.135	0.700	15	\$1,876.00	New construction MF homes with non-electric heat and Central AC	32.0%	0.0%
908	Residential New Construction Tier 2	MF	NC	2900	30.00%	870.0	0.090	0.700	0.270	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	32.0%	0.0%

Measure /	Assumptions Sources - PPL								Per Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit	Base Elec. Use	% Elec. Savings	Savings	Per Unit Winter Demand	Winter CF	Summer Demand Savings	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100	Water Heating End Line	Type	vs. NC	(kWh)	ourings	(kWh)	Savings (kW)		(kW)						
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PPL	PA Baseline	CF Note 1: The coincidence factor for this energy efficiency measure was set to 1.0 because the kW demand impa for this measure was already on a coincident peak basis.
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	PPL	PA Baseline	for this incastic was already on a coincident peak basis.
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA TRM	GDS research	PPL	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	PPL	PPL	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PPL	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF	PA TRM	GDS estimate	PPL	PA Baseline	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF	PA TRM	MID-ATL TRM	PPL.	PA Baseline	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF	PA TRM	Google.com	PPL/PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	PPL/PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO	PA TRM	OHIO	PA TRM	PA TRM	PPL.	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF	PA TRM	GDS research	PPL.	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA TRM	GDS research	PPL	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	GDS research	PPL	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	PPL (email)	PPL	PPL	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	MID-ATL TRM	PPL	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	GDS estimate	PPL	PA Baseline	
117	Electric Water Heater Pipe Insulation	SEA	Retrofit	-		PA TRM	PA TRM	Note 1 *See CF	PATRM	*See CF	PATRM	MID-ATL TRM	PPI.	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	Note 1 *See CF	PA TRM	Note 1 *See CF	PA TRM	Google.com	PPL/PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-		PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	MID-ATL TRM	PPL/PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit			PA TRM	PATRM	Note 1 OHIO	PATRM	Note 1 OHIO	PATRM	PA TRM	PPL	PA Baseline	or eight interesperiorities is assumed from the tree and is incored into base situation calculation
120	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB			PA TRM	PATRM	TRM *Sec CF	PATRM	TRM *See CF	PATRM	GDS research	PPL	PA Baseline	
121	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-		PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	GDS research	PPL	PA Baseline	
122	Efficient Electric Water Heaters- 0.97 Energy Factor	MF	ROB			PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	GDS research	PPL	PA Baseline	
124	Solar Water Heaters	ME	ROB			PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	PPL (email)	PPL	PPL	
124	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-		PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	MID-ATL TRM	PPL	PA Baseline	
125		MF	ROB	-	-	PA TRM PA TRM	PATRM	Note 1 *See CF	PATRM	Note 1 *See CF	PATRM	GDS estimate	PPL.	PA Baseline	
	Heat Pump Water Heaters- 2.3 Energy Factor			-	-			Note 1 *See CF		Note 1 *See CF					64/6
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM PA TRM	PA TRM PA TRM	Note 1 *See CF	PA TRM PA TRM	Note 1 *See CF	PA TRM PA TRM	MID-ATL TRM	PPL PPL/PA TRM	PA Baseline PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF		-	-	PA TRM PA TRM	PA TRM PA TRM	Note 1 *See CF	PA TRM PA TRM	Note 1 *See CF	PA TRM PA TRM	Google.com MID-ATL TRM	PPL/PA TRM PPL/PA TRM	PA Baseline PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
	Low Flow Faucet Aerators		Retrofit	-	-			Note 1 OHIO		Note 1 OHIO					3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130 200	Water Heater Tank Wrap	MF	Retrofit	-		PA TRM	PA TRM	TRM	PA TRM	TRM	PA TRM	PA TRM	PPL	PA Baseline	
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PPL.	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM PA TRM /	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	

Measure A	ssumptions Sources - PPL						-								
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	Base saturation is based on assumption of 2 bulbs per outdoor fixture from baseline study saturation data
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&pq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&pq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&pq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PPL	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
218	LED Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	÷	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	Base saturation is based on assumption of 2 bulbs per outdoor fixture from baseline study saturation data
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A701281:5A37AB8353011?q=Residential+Occupancy+Sensors&dpf=4&dpq=Residential%2bOccupancy%2b Sensors&PURAL=CDcA&ppc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&dpf=0&pq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&dpq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PPL	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	

Measure A	Assumptions Sources - PPL														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID-ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	Base saturation is based on assumption of 2 bulbs per outdoor fixture from baseline study saturation data
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
243	Residential Occupancy Sensors- 14 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pf180i-llw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- bury/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&dpq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pf180i-llw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&dpf=0&dpq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pf1801-Ilw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to- buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&dpf=0&dpq=Residential%2bOccupancy%2b Sensors&FORM=CPCA&dppc=16
300	Applemees Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL.	PA Baseline	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL.	PA Baseline	
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	÷	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PPL, PA Baseline	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PPL.	EnergyStar Market Penetration Summary	
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PECO 2011	
313	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
314	ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
315	ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PPL	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&aq=whole+house+fan&aid=&ect=& &qs=n&pq=whole+house+fan&sp=&cr=Completions&tk=&spv=&sel=E≻=&st=*=AAAAAAA#x0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL	PA Baseline	

Measure	Assumptions Sources - PPL								D 11.1						
Measure	Measure Name	Home	ROB vs. Retrofit	Base Elec. Use	% Elec.	Annual Elec. Savings	Per Unit Winter Demand	Winter CF	Per Unit Summer	Summer	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
		Туре	vs. NC	(kWh)	Savings	(kWh)	Savings (kW)		Demand Savings (kW)	CF					
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL.	PA Baseline	
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
323	Energy Star side mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PPL, PA Baseline	PA Baseline	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PPL.	EnergyStar Market Penetration Summary	
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PECO 2011	
332	ENERGY STAR Clothes Washers- with Electric Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-		EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	Calculator EnergyStar	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	Calculator EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PPL.	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&aq=whole+house+fan&aid=&ct= &qs=n&pq=whole+house+fan&sp=&ct=Completions&tk=&spv=&sl=E≻=&st=*=AAAAAAA#x0y0
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL.	PA Baseline	
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	PPL.	PA Baseline	
341	Energy Star top mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
342	Energy Star side mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL, PA Baseline	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	PPL, PA Baseline	PA Baseline	
348	Energy Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	PPL, PA Baseline	PA Baseline	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	PPL.	EnergyStar Market Penetration Summary	
350	Energy Star Electric Clothes Dryer with Moisture Sensor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PECO 2011	
351	ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	PA Baseline	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	PA Baseline	
						Sacoatol									

Measure A	Assumptions Sources - PPL														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL	PA Baseline	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	PPL	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&aq=whole+house+fan&aid=&ect= &qs=n&pq=whole+house+fan&sp=&crt=Completions&rk=&spv=&sl=E≻=&st=AAAAAAAA#x0y0
400	Electronics													EnergyStar	
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	Market Penetration Summary	Savings - PA TRM p.122
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
403	ENERGY STAR Fax Machine	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	EnergyStar Market Penetration	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	Summary EnergyStar Market Penetration Summary	
407	>50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	Codes and Standards Enhancement Initiative	
408	<50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	EnergyStar Market Penetration	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	EnergyStar Market Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
416	>50 in	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	Codes and Standards Enhancement Initiative	
417	<50 in	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	Codes and Standards Enhancement Initiative	
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL	EnergyStar Market Penetration Summary	

Measure /	Assumptions Sources - PPL								D 11 5			1			
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
423	ENERGY STAR Multifunction	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PPL.	EnergyStar Market Penetration Summary	
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	PPL.	EnergyStar Market Penetration Summary	
425	>50 in	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL.	Codes and Standards Enhancement Initiative	
426	<50 in	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL	Codes and Standards Enhancement Initiative	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
500	Pool														
501	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	PPL	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings - PA and Mid Atlantic TRMs
502	Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	PPL	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
504	Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / Obio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	PPL.	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - kW <sub>ss</sub> and kW <sub>ysn</sub> parameters taken from Ohio TRM
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	PPL	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-		PA TRM / Obio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	PPL	GDS Estimate	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used -
600	HVAC (Envelope)					Ohio TRM	TRM		TRM						kW <sub>ss</sub> and kW <sub>WD</sub> parameters taken from Ohio TRM
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report GDS	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$1.82/sq fr (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report GDS	Navigant 2011, PPL	PPL.	PA Baseline	\$2.29/sq ft (from Navigan) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from PECO); ** wall insulation = area of walls - area of windows * price per sq ft
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	\$150 per 100 square feet of windows multiplied by square footage from PECO
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM GDS	DEER database	PPL	PA Baseline	
612	Air Scaling (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report GDS	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report GDS	Navigant 2011, PPL	PPL	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report GDS	Navigant 2011, PPL	PPL.	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report GDS	Navigant 2011, PPL	PPL.	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)

Measure A	ssumptions Sources - PPL									-					
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database	PPL.	PA Baseline	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey all SFD homes have insulation
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL.	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL.	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
630	ENERGY STAR Windows	SFD	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL	PA Baseline	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	1.82/sq ft (from Navigan) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Report	Navigant 2011, PPL	PPL	PA Baseline	22.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL	PA Baseline	
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)

Measure A	ssumptions Sources - PPL	_							<b>N N I</b>	_					
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer s CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	229/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL.	PA Baseline	
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Report	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	229/sq ft (from Navigan) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL	PA Baseline	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
670	ENERGY STAR Windows	MF	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPI.	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	PPL	PA Baseline	
675	ENERGY STAR Windows	MF	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, PPL	PPL.	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from PECO)
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, PPL	PPL	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from PECO)

	ssumptions Sources - PPL								<b>D T</b>						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
680 1	ENERGY STAR Windows	MF	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	PPL	PA Baseline	
700 I 701 I	HVAC (Equipment/Controls) Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate		REMRate	REMRate/TRM	*See CF	REMRate/TRM	*See CF	PA TRM	Home Depot	PPL.	PPL	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate		PA TRM	PA TRM	Note 1 PA TRM	PA TRM	Note 1 PA TRM	PATRM	Home Depot	PPI.	PA Baseline	
	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER	SFD	ROB	RemRate		PA TRM	PATRM	PA TRM	PATRM	PA TRM	PATRM	DEER database	PPL	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
704	15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER	SFD	ROB	RemRate		PA TRM	PATRM	PATRM	PATRM	PATRM	PATRM	DEER database	PPL	PA Baseline	Measure cost is from Navigant. Varigant cited the 2008 DEER database as the source Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
705	16 (3.5 ton) GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PATRM	PPL (email)	PPL	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for
/05	GSHP w/ Desuperheater	SFD	ROB	RemKate	-	REMRate	REMRate	PA 1RM	REMRate	PA TRM	PATRM	PPL (email)	PPL.	PA Baseline	desuperheater
706 1	Ductless Mini-Split Heat Pumps	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PPL.	PA Baseline	cost source: http://www.stacenengy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency% 20%20FINAL%20.pdf
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	PPL	PA Baseline	
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL	PA Baseline	
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL.	PA Baseline	
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PPL	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID-ATL TRM	MID-ATL TRM	PPL	GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate		REMRate	REMRate/TRM	GDS	REMRate/TRM	PA TRM	PA TRM	Home Depot	PPL.	PPL	
713	Furnace Whistle	SFD	Retrofit	PA TRM		PA TRM	PA TRM	*See CF	PA TRM	*See CF	PA TRM	Amazon	PPL.	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	RemRate	-	PA TRM	PA TRM	Note 1 PA TRM	PA TRM	Note 1 PA TRM	GDS	PPL	PPL.	PA Baseline	Base saturation is from PECO baseline study; adjusted for units that are already EnergyStar rated
	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	RemRate	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	estimate GDS estimate	PPL	PPL	PA Baseline	Base saturation is from PECO baseline study; adjusted for units that are already EnergyStar rated
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PPL.	PPL	
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL.	PA Baseline	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER	SFA	ROB	RemRate		PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database	PPL.	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
719	13 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate		PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database	PPL.	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
720	16 (3.5 ton) GSHP w/ Desuperheater	SFA	ROB	RemRate		REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PPL	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for
	Ductless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM		Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PPL.	PA Baseline	desuperheater cost source: http://www.stacenengy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency% 20%20FINAL%20.pdf
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	PPL.	PA Baseline	
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL	PA Baseline	
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL	PA Baseline	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PPL	
726	Fumace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID-ATL TRM	MID-ATL TRM	PPL.	GDS Estimate	
727 1	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS	REMRate/TRM	PA TRM	PA TRM	Home Depot	PPL.	PPL	
728	Furnace Whistle	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PPL.	GDS Estimate	
729 1	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	RemRate		PA TRM	PA TRM	PA TRM	PA TRM	Note 1 PA TRM	GDS	PPL.	PPL.	PA Baseline	
730 1	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	RemRate	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	PPL	PPL	PA Baseline	
	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PPL.	PPL	
731 1															
731	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	

Measure A	Assumptions Sources - PPL														
Measure	Measure Name	Ноте Туре	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	DEER database	PPL	PA Baseline	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PPL	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desunerheater
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	PPL.	PA Baseline	cost source: http://www.stacenengv.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency% 21%20FINAL%20.pdf
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	PPL	PA Baseline	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL	PA Baseline	
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Navigant 2011	PPL	PA Baseline	
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PPL	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID-ATL TRM	MID-ATL TRM	PPL	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PPL	PPL	
743	Furnace Whistle	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PPL	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PPL.	PPL.	PA Baseline	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	RemRate	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	PPL	PPL.	PA Baseline	
800 801	Whole House Direct (Real Time) Feedback	SFD	Retrofit	RemRate		Vermont	Vermont TRM	GDS	Vermont TRM	GDS	PA TRM	Vermont TRM	PPL	PPL (email)	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	TRM Opower	Opower	estimate GDS	Opower	estimate GDS	PATRM	Communication with	PPL.	PPL Quartrly	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PATRM	Opower Vermont TRM	PPL	Report PPL (email)	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	TRM	Opower	estimate GDS	Opower	estimate GDS	PATRM	Communication with	PPL PPL	PPL Quartrly	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Opower Vermont	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PATRM	Opower Vermont TRM	PPL PPL	Report PPL (email)	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	TRM Opower	Opower	estimate GDS	Opower	estimate GDS	PATRM	Communication with	PPL PPL	PPL Quartrly	
807	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PATRM	Opower Vermont TRM	PPL PPL	Report PPL (email)	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	TRM Opower	Opower	estimate GDS	Opower	estimate GDS	PATRM	Communication with	PPL PPL	PPL Quartrly	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PATRM	Opower Vermont TRM	PPL	Report PPL (email)	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	TRM Opower	Opower	estimate GDS	Opower	estimate GDS	PATRM	Communication with	PPL	PPL Quartrly	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PA TRM PA TRM	Opower Vermont TRM	PPL PPL	Report PPL (email)	
811		SFA	Retrofit	RemRate	-	TRM		estimate GDS		estimate GDS	PATRM	Communication with	PPL PPL	PPL (email) PPL Quartrly	
	Indirect Feedback (O-Power)				-	Opower Vermont	Opower	estimate GDS	Opower	estimate GDS		Opower		Report	
813	Direct (Real Time) Feedback Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PA TRM PA TRM	Vermont TRM Communication with	PPL.	PPL (email) PPL Quartrly	
814			Retrofit		-	Opower Vermont	Opower	estimate GDS	Opower	estimate GDS	PA TRM PA TRM	Opower	PPL PPL	Report	
	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS		Vermont TRM Communication with		PPL (email) PPL Quartrly	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower Vermont	Opower	estimate GDS	Opower	estimate GDS	PA TRM	Opower	PPL	Report	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	Vermont TRM	estimate GDS	PA TRM	Vermont TRM Communication with	PPL.	PPL (email) PPL Quartrly	
818 900	Indirect Feedback (O-Power) New Construction	MF	Retrofit	RemRate	-	Opower	Opower	estimate	Opower	estimate	PA TRM	Opower	PPL	Report	
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate GDS	RemRate	GDS estimate GDS	GDS estimate GDS	EnergyStar Homes Report EnergyStar Homes	PPL.	GDS estimate	p: 36 of PPI, 2010 Residential Saturation Study states that 89% of new homes have central AC; 24% have heat pumps and 52% have electric central air
902	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Report EnergyStar Homes	PPL	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	GDS estimate GDS	estimate GDS	EnergyStar Homes Report EnergyStar Homes	PPL.	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	estimate	RemRate	GDS estimate GDS	estimate	Report	PPL.	GDS estimate	
905	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL.	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	

Amazon: Retail prices derived from Amazon's website Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report Best Buy: Retail prices derived from Best Buy's website

Measure Assumptions	Sources - PPL														
		Home		Base Elec.	% Elec.		Per Unit Winter		Per Unit Summer	Summer			<b>n</b>	77.0	
Measure	Measure Name	Туре	Retrofit vs. NC	Use (kWh)	Savings	Savings (kWh)	Demand Savings (kW)	Winter CF	Demand Saving	s CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
Bing.com: Retail prices	derived from bing.com search results												•		
Codes and Standards En															
CT Lighting CF Report: 0	Connecticut Lighting Coincidence Factor Report														
	ia database of Energy Efficiency Resources														
EnergyStar: governmen	t-backed website that helps protect the environme	nt through su	perior energ	y efficiency											
EnergyStar 2011 Saving	s and Costs														
	service provided by EnergyStar to help estimate s	avings, useful	life, and cost												
EnergyStar Homes Repo															
	orgyStar Penetration Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010)														
	lculation/Assumption. See measure-specific notes														
	industry experience and professional judgement				a at the state,	/regional level.									
	t: SPWG and GDS's document of a set of measure li	ife values for :	selected meas	sures											
	es derived from Google Shopping														
	ces derived from Home Depot's website														
	erived from Lowe's website.														
	antic Technical Reference Manual. Version 2.0														
	is methods and results of ICS, commissioned by the	e EM&V Forui	m Research S	ubcommittee to	o update incr	emental costs fo	or measures								
Obio TRM: Obio Technic	ed for calculating indirect feedback														
	ia Baseline study, conducted by GDS														
	ia Baseline study, conducted by GDS Fechnical Reference Manual														
	nnsylvania Technical Reference Manual / Ohio Te	chnical Pofor	onco Manual												
	ited from PECO's residential survey	chinear Refere	ence mallual												
	m PPL's residential survey														
	ocuments progress and effectiveness of EE&C acc	mnlishments	s for PPL thro	ugh end of PY3	3. Quarter 2										
	rgy Modeling Software. Prototype homes were m					) Fnorm Rasoli	ine Study Februari	2011							
ALIM, ALICE DURINING LINE	a ky modeling software. Trototype nomes were m	oucieu Daseu	on avei age ci	man accessibles u	sing ale i but	o miner av Dasen	ne orany, rebruary								

The American Council for an Energy-Efficient Economy: Report on technical and policy issues relating to energy efficiency Vermont TRM: Vermont Technical Reference Manual

Measure .	Assumptions - West Penn														
		Home Type	ROB vs.	Base		Annual	Per Unit Winter		Per Unit Summer						
Measure	Measure Name	(SFA,	Retrofit	Elec.	% Elec.	Elec.	Demand	Winter	Demand	Summer CF	Useful		Measure/End Use Description	Base	EE Saturation
		SFD,	vs. NC	Use (kWh)	Savings	Savings (kWh)	Savings	CF	Savings	CF	Life	/Full Cost		Saturation	
100	W2 - 11 - 5 - 15 - 111	MF)		()		()	(kW)		(kW)						
100	Water Heating End Use Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	44.2%	18.5%
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	175.0	0.016	1.000	0.016	1.000	14	\$99.31	Homes w/Electric Water Heater	44.2%	18.5%
	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	44.2%	18.5%
104	Solar Water Heaters Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00 \$925.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	44.2%	0.0%
	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	44.2%	2.4%
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	124.0	0.011	1.000	0.011	1.000	13	\$18.00	Homes w/Electric Water Heater	44.2%	13.1%
108	Low Flow Showerheads- 1.5 GPM Low Flow Faucet Aerators	SFD	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9 12	\$20.00 \$2.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	70.6%	62.1% 60.0%
	Water Heater Tank Wrap	SFD	Retrofit	-	-	97.0	0.056	1.000	0.036	1.000	7	\$50.00	Homes w/Electric Water Heater	44.2%	7.8%
	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14	\$92.75	Homes w/Electric Water Heater	42.9%	18.5%
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	217.0	0.016	1.000	0.016	1.000	14	\$99.31 \$105.87	Homes w/Electric Water Heater	42.9%	18.5%
113	Efficient Electric Water Heaters- 0.95 Energy Factor Solar Water Heaters	SFA	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87 \$8,164.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	42.9%	0.0%
	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	42.9%	2.4%
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	42.9%	2.4%
	Electric Water Heater Pipe Insulation Low Flow Showerheads- 1.5 GPM	SFA	Retrofit Retrofit	-	-	124.0 461.0	0.011	1.000	0.011	1.000	13	\$18.00 \$20.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	42.9% 68.6%	13.1% 62.1%
	Low Flow Snowerneads- 1.5 GPM Low Flow Faucet Aerators	SFA	Retrofit	-	-	61.0	0.042	1.000	0.042	1.000	12	\$20.00	Homes w/Electric Water Heater	150.0%	60.0%
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	42.9%	7.8%
	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	133.0	0.012	1.000	0.012	1.000	14 14	\$92.75 \$99.31	Homes w/Electric Water Heater	64.2% 64.2%	18.5% 18.5%
	Efficient Electric Water Heaters- 0.94 Energy Factor Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	175.0 217.0	0.016	1.000	0.016	1.000	14	\$99.51 \$105.87	Homes w/Electric Water Heater Homes w/Electric Water Heater	64.2%	18.5%
123	Solar Water Heaters	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	64.2%	0.0%
	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	64.2%	2.4%
	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB Retrofit	-	-	2202.0 124.0	0.202	1.000	0.202	1.000	14	\$975.00 \$18.00	Homes w/Electric Water Heater	64.2% 64.2%	2.4%
127	Electric Water Heater Pipe Insulation Low Flow Showerheads- 1.5 GPM	MF	Retrofit	-	-	461.0	0.011	1.000	0.011	1.000	9	\$20.00	Homes w/Electric Water Heater Homes w/Electric Water Heater	102.7%	62.1%
	Low Flow Faucet Aerators	MF	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	224.6%	60.0%
-00	Water Heater Tank Wrap	MF	Retrofit	-	-	97.0	0.011	1.000	0.011	1.000	7	\$50.00	Homes w/Electric Water Heater	64.2%	7.8%
200 201	Lighting Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-		134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	197.5%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with rightlights	24.6%	10.9%
203	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	24.6%	10.9%
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	18.3%
205 206	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD SFD	ROB ROB	-	-	31.3 45.1	0.029	0.298	0.029	0.050	6	\$1.25 \$1.25	Homes with 75 Watt incandescent bulbs Homes with 100 Watt incandescent bulbs	100.0%	18.3% 18.3%
206	ENERGY STAR CFL bubs (screw-iii) 100 watt mean 10 a 25 watt CFL ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	-	-	27.0	0.041	0.258	0.041	0.050	20	\$1.25	Homes with noo watt incandescent builds	100.0%	18.3%
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	18.3%
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	71.2	0.070	0.298	0.070	0.050	20	\$30.00	Homes with reflector lamps	100.0%	18.3%
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres	SFD	ROB	-	-	81.7 60.4	0.057	0.050	0.057	0.050	20	\$20.00 \$25.00	Homes with outdoor fixtures	350.0%	18.3%
211 212	ENERGY STAR Torchieres ENERGY STAR Holiday Lights	SFD	ROB	-	-	60.4 10.6	0.066	0.050	0.066	0.050	10	\$25.00 \$20.00	Homes with torchieres Homes with holiday lights	60.0%	18.3%
212	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with nonday lights Homes with occupancy sensors	4.2%	17.5%
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	4.2%	17.5%
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	4.2%	17.5%
216 217	Ceiling Fan with ENERGY STAR Light Fixture Electroluminescent Nightlight	SFA SFA	ROB ROB	-	-	134.0 26.0	0.119	0.298	0.119	0.050	20	\$86.00 \$2.20	Homes with ceiling fans that have light fixtures Homes with nightlights	24.6%	35.8%
217	LED Nightlight	SFA	ROB	-	-	20.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	24.6%	10.9%
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	26.7	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent bulbs	100.0%	35.8%
	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	31.3	0.029	0.298	0.029	0.050	6	\$1.25	Homes with 75 Watt incandescent bulbs	100.0%	35.8%
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA SFA	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	35.8% 35.8%
222 223	ENERGY STAR Indoor Fixture (hard-wired, pin-based) ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00 \$20.00	Homes with indoor fixtures Homes with general service lamps	100.0%	35.8%
223	ENERGY STAR LEDs - General Service Lamps ENERGY STAR LEDs - Reflector Lamp	SFA	ROB	-	-	71.2	0.031	0.298	0.031	0.050	20	\$20.00	Homes with reflector lamps	100.0%	35.8%
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	35.8%
226	ENERGY STAR Torchieres	SFA	ROB	-	-	60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	35.8%
227 228	ENERGY STAR Holiday Lights Residential Occupancy Sensors- 14 W CFL	SFA	ROB Retrofit	-	-	10.6 4.6	0.000	0.000	0.000	0.000	10	\$20.00 \$18.00	Homes with holiday lights	60.0%	16.7% 17.5%
228	Residential Occupancy Sensors- 14 W CFL Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	4.6	0.000	0.298	0.000	0.050	10	\$18.00 \$18.00	Homes with occupancy sensors Homes with occupancy sensors	0.0%	17.5%
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	134.0	0.119	0.298	0.119	0.050	20	\$86.00	Homes with ceiling fans that have light fixtures	49.0%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	24.6%	10.9%
233 234	LED Nightlight ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB ROB	-	-	22.0 26.7	0.000	0.000	0.000	0.000	8	\$1.00 \$1.25	Homes with nightlights Homes with 60 Watt incandescent bulbs	24.6%	10.9% 28.0%
234	ENERGY STAR CFL Bulbs (screw-in) 50 watt Incan. To a 14 watt CFL ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	31.3	0.024	0.298	0.024	0.050	6	\$1.25	Homes with 60 Watt incandescent builds Homes with 75 Watt incandescent bulbs	100.0%	28.0%
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	45.1	0.041	0.298	0.041	0.050	6	\$1.25	Homes with 100 Watt incandescent bulbs	100.0%	28.0%
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	-	-	27.0	0.030	0.050	0.030	0.050	20	\$15.00	Homes with indoor fixtures	100.0%	28.0%
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	31.7	0.031	0.298	0.031	0.050	13.7	\$20.00	Homes with general service lamps	100.0%	28.0%
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	71.2 81.7	0.070	0.298	0.070	0.050	20 20	\$30.00 \$20.00	Homes with reflector lamps	100.0%	28.0%
0.10				-	-	81./	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	
240 241	ENERGY STAR Outdoor Fixture (hard wired, pin-based) ENERGY STAR Torchieres	MF	ROB			60.4	0.066	0.050	0.066	0.050	10	\$25.00	Homes with torchieres	100.0%	28.0%

Measure	Assumptions - West Penn														1
Measure	Measure Name	Home Type (SFA, SFD,	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings	Winter CF	Per Unit Summer Demand Savings	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
243	Residential Occupancy Sensors- 14 W CFL	MF)	Retrofit	-		4.6	(kW) 0.000	0.298	(kW) 0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	6.2	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	7.6	0.000	0.298	0.000	0.050	10	\$18.00	Homes with occupancy sensors	0.0%	17.5%
300 301	Appliances Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB			1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	44.2%	3.6%
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	44.2%	3.6%
303	Energy Star top mount freezer without door ice	SFD	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	40.0%	26.6%
304 305	Energy Star side mount freezer without door ice Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	127.0 116.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with side mount freezers without door ice	5.7% 17.0%	26.6% 26.6%
305	Energy Star top mount freezer with door ice	SFD SFD	ROB ROB	-	-	124.0	0.013	1.000	0.013	1.000	13 13	\$95.00	Homes with bottom mount freezers without door ice Homes with top mount freezers with door ice	4.2%	26.6%
307	Energy Star side mount freezer with door ice	SFD	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	30.9%	26.6%
308	Energy Star upright with manual defrost	SFD	ROB	-	-	47.0 67.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	19.5%	4.5%
309 310	Energy Star upright with automatic defrost Energy Star chest freezer	SFD	ROB	-	-	67.0	0.011	1.000	0.011	1.000	11 11	\$72.00 \$18.00	Homes with upright, automatic defrost freezers Homes with chest freezers	13.8%	4.5% 4.5%
310	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0	0.010	1.000	0.010	1.000	11	\$0.00	Homes with dehumidifiers	43.8%	85.3%
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	76.6%	95.1%
313 314	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD SFD	ROB ROB	-	-	224.0 24.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat Homes with clothes washer and gas heat	40.0%	24.5% 24.5%
314 315	ENERGY STAR Clothes Washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	24.0	0.015	1.000	0.015	1.000	10	\$250.00 \$12.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	25.7%	24.5%
316	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	41.5%	37.0%
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Detached SF homes with room AC	49.4%	24.4%
318 319	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	SFD SFD	ROB Retrofit	-	-	2.0 229.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	10.0% 9.1%
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with residential whole house rans	8.9%	3.6%
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	8.9%	3.6%
322	Energy Star top mount freezer without door ice	SFA	ROB	-	-	106.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers without door ice	73.2%	26.6%
323 324	Energy Star side mount freezer without door ice Energy Star bottom mount freezer without door ice	SFA SFA	ROB ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00 \$95.00	Homes with side mount freezers without door ice Homes with bottom mount freezers without door ice	3.6%	26.6%
325	Energy Star top mount freezer with door ice	SFA	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	7.1%	26.6%
326	Energy Star side mount freezer with door ice	SFA	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	12.5%	26.6%
327	Energy Star upright with manual defrost	SFA	ROB	-	-	47.0 67.0	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	14.5%	4.5% 4.5%
328	Energy Star upright with automatic defrost Energy Star chest freezer	SFA SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$72.00 \$18.00	Homes with upright, automatic defrost freezers Homes with chest freezers	7.1%	4.5%
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	17.9%	85.3%
331	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	58.9%	95.1%
332	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFA SFA	ROB ROB	-	-	224.0 24.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat Homes with clothes washer and gas heat	35.7% 25.0%	24.5% 24.5%
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	74.0	0.013	1.000	0.023	1.000	10	\$250.00	Homes with dishwasher and electric heat	17.9%	37.0%
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	8.9%	37.0%
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	98.0	0.102	0.000	0.102	0.580	10	\$50.00	Attached SF homes with room AC	87.5%	24.4%
337 338	Energy Star Exhaust Fans Energy Star Residential Whole House Fans	SFA	ROB Retrofit	-	-	2.0	0.060	1.000	0.060	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	9.1%
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with residential whole house fails Homes with secondary refrigerators	3.0%	3.6%
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	1659.0	0.332	0.620	0.332	0.620	8	\$120.00	Homes with secondary refrigerators	3.0%	3.6%
341 342	Energy Star top mount freezer without door ice Energy Star side mount freezer without door ice	MF MF	ROB ROB	-	-	106.0	0.013	1.000	0.013	1.000	13 13	\$95.00 \$95.00	Homes with top mount freezers without door ice Homes with side mount freezers without door ice	76.1%	26.6%
343	Energy Star side mount freezer without door ice	MF	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	4.5%	26.6%
344	Energy Star top mount freezer with door ice	MF	ROB	-	-	124.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with top mount freezers with door ice	4.5%	26.6%
345	Energy Star side mount freezer with door ice	MF	ROB	-	-	133.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers with door ice	6.0%	26.6%
346 347	Energy Star upright with manual defrost Energy Star upright with automatic defrost	MF	ROB	-	-	47.0 67.0	0.011	1.000	0.011	1.000	11	\$80.00 \$72.00	Homes with upright, manual defrost freezers Homes with upright, automatic defrost freezers	6.1% 4.3%	4.5% 4.5%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with upight, automatic denost freezers	9.0%	4.5%
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	3.0%	85.3%
350	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB	-	-	136.0 224.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	52.2% 47.8%	95.1% 24.5%
351	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00 \$250.00	Homes with clothes washer and electric heat Homes with clothes washer and gas heat	47.8%	24.5%
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	74.0	0.023	1.000	0.023	1.000	10	\$12.00	Homes with clothes washer and gas heat Homes with dishwasher and electric heat	19.4%	37.0%
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	3.0%	37.0%
355 356	ENERGY STAR Room Air Conditioners Energy Star Exhaust Fans	MF	ROB ROB	-	-	98.0 2.0	0.102 0.060	0.000	0.102	0.580	10 10	\$50.00 \$25.00	MF homes with room AC Homes with exhaust fans	79.1%	24.4% 10.0%
356	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	229.0	0.000	1.000	0.000	1.000	10	\$25.00 \$348.00	Homes with exhaust fans Homes with residential whole house fans	100.0%	9.1%
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	84.2%	49.0%
402 403	ENERGY STAR Copier ENERGY STAR Fax Machine	SFD SFD	ROB ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00 \$60.00	Homes with a copier Homes with a fax machine	9.2% 9.2%	82.7% 6.0%
403	ENERGY STAR Monitor	SFD	ROB		_	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a lasktop computer	40.1%	72.3%
405	ENERGY STAR Multifunction	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	36.8%	63.3%
406	ENERGY STAR Printer >50 in television	SFD	ROB	-	-	26.0 481.0	0.004	1.000	0.004	1.000	5 15	\$1.00 \$1.00	Homes with a printer Homes with a television	36.8% 47.1%	69.7% 58.0%
407 408	<50 in television <50 in television	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television Homes with a television	4/.1% 216.0%	58.0%
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5	\$15.00	Homes with Powerstrips	100.0%	5.0%
410	ENERGY STAR Computer	SFA	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	66.1%	49.0%

Measure Measure 411	Assumptions - West Penn Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh) 73.0	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost \$60.00	Measure/End Use Description	Base Saturation	EE Saturation
411 412	ENERGY STAR Fax Machine	SFA	ROB ROB	-	-	73.0	0.010	1.000	0.010	1.000	6 4	\$60.00 \$60.00	Homes with a copier Homes with a fax machine	6.3%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a last machine Homes with a desktop computer	31.5%	72.3%
414	ENERGY STAR Multifunction	SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	25.0%	63.3%
415	ENERGY STAR Printer	SFA	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	25.0%	69.7%
416	>50 in television	SFA	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	7.7%	58.0%
417 418	<50 in television Smart Strip Plug Outlets	SFA SFA	ROB Retrofit	-	-	136.0 124.0	0.263	0.280	0.263	0.280	15	\$1.00 \$15.00	Homes with a television	192.3% 100.0%	58.0% 5.0%
418	ENERGY STAR Computer	MF	ROB	-	-	77.0	0.020	1.000	0.020	1.000	4	\$15.00	Homes with Powerstrips Homes with a computer	52.2%	49.0%
420	ENERGY STAR Copier	MF	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	6.0%	82.7%
421	ENERGY STAR Fax Machine	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	6.0%	6.0%
422	ENERGY STAR Monitor	MF	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	24.9%	72.3%
423	ENERGY STAR Multifunction ENERGY STAR Printer	MF	ROB ROB	-	-	78.0 26.0	0.011	1.000	0.011 0.004	1.000	6	\$1.00	Homes with a multifunction printer	23.9%	63.3% 69.7%
424 425	>50 in television	MF	ROB	-	-	481.0	0.004	0.280	0.004	0.280	5 15	\$1.00 \$1.00	Homes with a printer Homes with a television	23.9%	69./% 58.0%
425	<50 in television	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	168.7%	58.0%
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	124.0	0.020	0.500	0.020	0.500	5		Homes with Powerstrips	100.0%	5.0%
500	Pool														
	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	530.0 918.0	1.129	0.000	1.129	0.270	10		Homes with a pool	16.2%	0.4%
502 503	Variable Speed Pool Pumps High Efficiency Two-Speed Pool Pump	SFD	ROB ROB	-	-	918.0 530.0	0.621	0.000	0.621	0.270	10	\$750.00 \$175.00	Homes with a pool	16.2%	0.4%
503	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	1.8%	0.0%
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	530.0	1.129	0.000	1.129	0.270	10	\$175.00	Homes with a pool	1.5%	0.0%
506	Variable Speed Pool Pumps	MF	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	1.5%	0.0%
600 601	HVAC (Envelope) Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	19809	13.17%	2608.0	0.000	0.700	0.100	0.700	15	\$866.46	Detached SF existing homes with electric heat and Central AC	8.7%	72.9%
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	25593	22.60%	5784.0	2.600	0.700	0.600	0.700	25	\$1,907.35	Detached SF existing homes with electric heat and Central AC	8.7%	97.2%
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	25593	27.86%	7131.0	3.200	0.700	0.700	0.700	25	\$2.536.26	Detached SF existing homes with electric heat and Central AC	8.7%	97.2%
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	25593	28.95%	7410.0	3.300	0.700	0.800	0.700	25	\$3,278.58	Detached SF existing homes with electric heat and Central AC	8.7%	97.2%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	19809	8.21%	1626.0	0.700	0.700	0.200	0.700	25	\$2,536.26	Detached SF existing homes with electric heat and Central AC	8.7%	40.6%
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	29590	33.06%	9781.0	5.300	0.700	0.400	0.700	25	\$4,022.03	Detached SF existing homes with electric heat and Central AC	8.7%	84.7%
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	29590	37.26%	11025.0	6.000	0.700	0.500	0.700	25	\$5,100.41	Detached SF existing homes with electric heat and Central AC	8.7%	84.7%
608	ENERGY STAR Windows	SFD	ROB	19809 21229	6.39%	1266.0 1246.0	0.700	0.700	0.000	0.700	20 25	\$563.82	Detached SF existing homes with electric heat and Central AC	8.7% 8.7%	88.4% 47.9%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed) Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD SFD	Retrofit Retrofit	21229	5.87% 6.69%	1246.0	0.000	0.700	0.000	0.700	25	\$1,422.78 \$1,804.25	Detached SF existing homes with electric heat and Central AC Detached SF existing homes with electric heat and Central AC	8.7%	47.9%
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	19809	12.05%	2386.0	4.900	0.700	0.700	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	8.7%	58.3%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1964	-2.90%	-57.0	0.000	0.700	0.100	0.700	15	\$866.46	Detached SF existing homes with non-electric heat and Central AC	58.5%	72.9%
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	2274 2274	13.63%	310.0 381.0	0.000	0.700	0.600	0.700	25 25	\$1,907.35 \$2,536.26	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	58.5%	97.2% 97.2%
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615	Attic Insulation R0 to R60 (Cost Per Square Foot installed) Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD SFD	Retrofit	2274 1964	17.41% 4.38%	396.0 86.0	0.000	0.700	0.800	0.700	25 25	\$3,278.58 \$2,536.26	Detached SF existing homes with non-electric heat and Central AC	58.5%	97.2% 40.6%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot Installed) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	21964	4.38%	228.0	0.000	0.700	0.200	0.700	25	\$2,536.26 \$4.022.03	Detached SF existing homes with non-electric heat and Central AC Detached SF existing homes with non-electric heat and Central AC	58.5%	40.6%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	2192	11.72%	257.0	0.000	0.700	0.400	0.700	25	\$5,100.41	Detached SF existing homes with non-electric heat and Central AC	58.5%	84.7%
619	ENERGY STAR Windows	SFD	ROB	1964	-2.85%	-56.0	0.000	0.700	0.000	0.700	20	\$563.82	Detached SF existing homes with non-electric heat and Central AC	58.5%	88.4%
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1826	-6.63%	-121.0	0.000	0.700	0.000	0.700	25	\$1,422.78	Detached SF existing homes with non-electric heat and Central AC	58.5%	47.9%
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1826	-7.56%	-138.0	0.000	0.700	0.000	0.700	25	\$1,804.25	Detached SF existing homes with non-electric heat and Central AC	58.5%	47.9%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1964	10.59%	208.0	0.000	0.700	0.400	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	58.5%	58.3%
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1683	-2.79%	-47.0	0.000	0.700	0.200	0.580	15	\$866.46	Detached SF existing homes with non-electric heat and room AC	15.8%	72.9%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	2059	18.26%	376.0	0.000	0.700	0.700	0.580	25	\$1,907.35	Detached SF existing homes with non-electric heat and room AC	15.8%	97.2%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	2059	21.90%	451.0	0.000	0.700	0.800	0.580	25	\$2,536.26	Detached SF existing homes with non-electric heat and room AC	15.8%	97.2%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	2059	22.58%	465.0	0.000	0.700	0.900	0.580	25	\$3,278.58	Detached SF existing homes with non-electric heat and room AC	15.8%	97.2%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1683	5.29%	89.0	0.000	0.700	0.200	0.580	25	\$2,536.26	Detached SF existing homes with non-electric heat and room AC	15.8%	40.6% 84.7%
628 629	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed) Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD SFD	Retrofit	1931 1931	12.84%	248.0 279.0	0.000	0.700	0.400	0.580	25 25	\$4,022.03 \$5,100.41	Detached SF existing homes with non-electric heat and room AC	15.8%	84.7% 84.7%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFD	ROB	1931	-2.61%	-44.0	0.000	0.700	0.400	0.580	25	\$5,100.41 \$563.82	Detached SF existing homes with non-electric heat and room AC Detached SF existing homes with non-electric heat and room AC	15.8%	84.7%
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1532	-8.62%	-132.0	0.000	0.700	0.000	0.580	25	\$1,422.78	Detached SF existing homes with non-electric heat and room AC	15.8%	47.9%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1532	-9.86%	-151.0	0.000	0.700	0.000	0.580	25	\$1,804.25	Detached SF existing homes with non-electric heat and room AC	15.8%	47.9%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1683	0.59%	10.0	0.000	0.700	-0.100	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	15.8%	58.3%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	13693	15.74%	2155.0	0.100	0.700	0.100	0.700	15	\$721.14	Attached SF existing homes with electric heat and Central AC	10.7%	72.9%
635 636	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA SFA	Retrofit Retrofit	18416 18416	25.65% 31.83%	4723.0 5861.0	2.700	0.700	0.600	0.700	25 25	\$1,587.30 \$2,110.68	Attached SF existing homes with electric heat and Central AC	10.7%	97.2% 97.2%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed) Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	18416	33.11%	6098.0	3.400	0.700	0.700	0.700	25	\$2,110.68	Attached SF existing homes with electric heat and Central AC Attached SF existing homes with electric heat and Central AC	10.7%	97.2%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	13693	10.04%	1375.0	0.800	0.700	0.200	0.700	25	\$2,110.68	Attached SF existing homes with electric heat and Central AC	10.7%	40.6%
	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	17510	21.80%	3817.0	2.100	0.700	0.200	0.700	25	\$3,656.31	Attached SF existing homes with electric heat and Central AC	10.7%	84.7%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	17510	24.57%	4302.0	2.400	0.700	0.200	0.700	25	\$4,636.63	Attached SF existing homes with electric heat and Central AC	10.7%	84.7%

Measure	Assumptions - West Penn														
Measure	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
641	ENERGY STAR Windows	SFA	ROB	13693	8.72%	1194.0	0.700	0.700	0.000	0.700	20	\$544.38	Attached SF existing homes with electric heat and Central AC	10.7%	88.4%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	14135	2.66%	376.0	-0.100	0.700	0.000	0.700	25	\$1,184.04	Attached SF existing homes with electric heat and Central AC	10.7%	47.9%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	14135	3.13%	442.0	-0.100	0.700	0.000	0.700	25	\$1,501.50	Attached SF existing homes with electric heat and Central AC	10.7%	47.9%
644	HVAC Duct Sealing (Cost per typical single-family home)	SEA	Retrofit	13693	12.01%	1644.0	2.100	0.700	0.300	0.700	14	\$423.51	Attached SF existing homes with electric heat and Central AC	10.7%	58.3%
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1527	-3.54%	-54.0	0.000	0.700	0.100	0.700	15	\$721.14	Attached SE existing homes with non-electric heat and Central AC	26.8%	72.9%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1786	14.50%	259.0	0.000	0.700	0,600	0.700	25	\$1,587.30	Attached SF existing homes with non-electric heat and Central AC	26.8%	97.2%
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1786	17.92%	320.0	0.000	0.700	0.700	0.700	25	\$2.110.68	Attached SF existing homes with non-electric heat and Central AC	26.8%	97.2%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1786	18.59%	332.0	0.000	0.700	0.800	0.700	25	\$2,728.44	Attached SF existing homes with non-electric heat and Central AC	26.8%	97.2%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1527	4.78%	73.0	0.000	0.700	0.200	0.700	25	\$2,110.68	Attached SF existing homes with non-electric heat and Central AC	26.8%	40.6%
650 651	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit Retrofit	1583	3.54%	56.0 63.0	0.000	0.700	0.200	0.700	25 25	\$3,656.31 \$4,636.63	Attached SF existing homes with non-electric heat and Central AC	26.8%	84.7% 84.7%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed) ENERGY STAR Windows	SFA	ROB	1585	-4.13%	-63.0	0.000	0.700	0.200	0.700	25	\$4,636.63	Attached SF existing homes with non-electric heat and Central AC Attached SF existing homes with non-electric heat and Central AC	26.8%	84.7% 88.4%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1416	-6.78%	-96.0	0.000	0.700	0.000	0.700	25	\$1,184.04	Attached SF existing homes with non-electric heat and Central AC	26.8%	47.9%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1416	-7.84%	-111.0	0.000	0.700	0.000	0.700	25	\$1,501.50	Attached SF existing homes with non-electric heat and Central AC	26.8%	47.9%
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1527	10.67%	163.0	0.000	0.700	0.200	0.700	14	\$423.51	Attached SF existing homes with non-electric heat and Central AC	26.8%	58.3%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1382	-3.47%	-48.0	0.000	0.700	0.100	0.580	15	\$721.14	Attached SF existing homes with non-electric heat and room AC	12.5%	72.9%
(57		CEA	D		17 (00/		0.000					C4 507 20		12.5%	
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed) Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1679 1679	17.69%	297.0 369.0	0.000	0.700	0.700	0.580	25 25	\$1,587.30 \$2,110.68	Attached SF existing homes with non-electric heat and room AC Attached SF existing homes with non-electric heat and room AC	12.5%	97.2% 97.2%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1679	22.87%	384.0	0.000	0.700	0.800	0.580	25	\$2,728.44	Attached SF existing homes with non-electric heat and room AC	12.5%	97.2%
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1382	6.30%	87.0	0.000	0.700	0.100	0.580	25	\$2,110.68	Attached SF existing homes with non-electric heat and room AC	12.5%	40.6%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1451	4.76%	69.0	0.000	0.700	0.200	0.580	25	\$3,656.31	Attached SF existing homes with non-electric heat and room AC	12.5%	84.7%
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1451	5.31%	77.0	0.000	0.700	0.200	0.580	25	\$4,636.63	Attached SF existing homes with non-electric heat and room AC	12.5%	84.7%
663	ENERGY STAR Windows	SFA	ROB	1382	-3.76%	-52.0	0.000	0.700	0.000	0.580	20	\$544.38	Attached SF existing homes with non-electric heat and room AC	12.5%	88.4%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1250	-9.12%	-114.0	0.000	0.700	0.000	0.580	25	\$1,184.04	Attached SF existing homes with non-electric heat and room AC	12.5%	47.9%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1250	-10.56%	-132.0	0.000	0.700	0.000	0.580	25	\$1,501.50	Attached SF existing homes with non-electric heat and room AC	12.5%	47.9%
666	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1382 3710	1.95%	27.0 732.0	0.000	0.700	0.000	0.580	14	\$423.51	Attached SF existing homes with non-electric heat and room AC	12.5% 20.9%	58.3% 72.9%
667 668	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit Retrofit	4189	19.73%	479.0	0.000	0.700	0.000	0.700	25	\$360.36 \$1.197.50	MF existing homes with electric heat and central AC MF existing homes with electric heat and central AC	20.9%	72.9% 84.7%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	4189	12.87%	539.0	0.300	0.700	0.000	0.700	25	\$1,518.56	MF existing homes with electric heat and central AC	20.9%	84.7%
670	ENERGY STAR Windows	MF	ROB	3710	21.62%	802.0	0.500	0.700	0.000	0.700	20	\$416.81	MF existing homes with electric heat and central AC	20.9%	88.4%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	3710	8.46%	314.0	1.100	0.700	0.100	0.700	14	\$239.52	MF existing homes with electric heat and central AC	20.9%	58.3%
672 673	Air Sealing (cost per sf of living space for a typical multi-family home) Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	866 874	-0.46% 0.92%	-4.0 8.0	0.000	0.700	0.000	0.700	15 25	\$360.36 \$1,197.50	MF existing homes with non-electric heat and central AC MF existing homes with non-electric heat and central AC	10.4% 10.4%	72.9% 84.7%
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	874	1.03%	9.0	0.000	0.700	0.000	0.700	25	\$1,518.56	MF existing homes with non-electric heat and central AC	10.4%	84.7%
675	ENERGY STAR Windows	MF	ROB	866	-4.27%	-37.0	0.000	0.700	0.000	0.700	20	\$416.81	MF existing homes with non-electric heat and central AC	10.4%	88.4%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	866	7.39%	64.0	0.000	0.700	0.100	0.700	14	\$239.52	MF existing homes with non-electric heat and central AC	10.4%	58.3%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	948	-0.63%	-6.0	0.000	0.700	0.000	0.580	15	\$360.36	MF existing homes with non-electric heat and room AC	22.4%	72.9%
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	956	0.84%	8.0	0.000	0.700	0.000	0.580	25	\$1,197.50	MF existing homes with non-electric heat and room AC	22.4%	84.7%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	956	0.94%	9.0	0.000	0.700	0.000	0.580	25	\$1,518.56	MF existing homes with non-electric heat and room AC	22.4%	84.7%
680	ENERGY STAR Windows	MF	ROB	948	-4.32%	-41.0	0.000	0.700	0.000	0.580	20	\$416.81	MF existing homes with non-electric heat and room AC	22.4%	88.4%
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	948	7.59%	72.0	0.000	0.700	0.000	0.580	14	\$239.52	MF existing homes with non-electric heat and room AC	22.4%	58.3%
700	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	19809	1.95%	387.0	0.000	1.000	0.000	1.000	15	\$25.00	Detached SF homes with heat pumps	6.0%	60.8%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	19809	9.53%	1888.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	6.0%	66.9%
703 704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton) Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB ROB	16146 16146	4.97% 6.71%	803.0 1084.0	0.000	0.700	0.200	0.700	12 12	\$822.00 \$1,644.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	6.0%	15.9% 15.9%
705	GSHP w/ Desuperheater	SED	ROB	20067	12.30%	2469.0	0.000	0.700	0.600	0.700	30	\$11,300.00	Detached SF homes with heat pumps	6.0%	15.9%
705	Ductless Mini-Split Heat Pumps	SFD	ROB	20067	12.30% 30.78%	2469.0 4970.0	8.000	0.700	0.600	0.700	30 15	\$11,500.00 \$1,200.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	6.0%	15.9%
706	Ground Source Heat Pumps (GSHP)	SFD	ROB	16146	11.22%	1811.0	0.000	0.700	0.400	0.700	30	\$1,200.00	Detached SF homes with heat pumps Detached SF homes with heat pumps	6.0%	15.9%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	1404	11.47%	161.0	0.000	0.000	0.200	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	67.5%	15.9%
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	1404	16.10%	226.0	0.000	0.000	0.200	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	67.5%	15.9%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	1964	9.98%	196.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	67.5%	53.1%
711	Furnace High Efficiency Fan	SFD	Retrofit	3191	13.98%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Detached SF existing homes with non-electric furnace	82.3%	10.0%
712	Programmable Thermostat (CAC)	SFD	Retrofit	1964	19.70%	387.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	67.5%	60.8%
713	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	Detached SF existing homes with non-electric furnace	82.3%	10.0%
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD SFD	ROB ROB	353	100.00%	353.0 26.0	0.000	0.000	0.000	0.580	4	\$65.00	Detached SF homes with room AC	49.4%	24.4%
715	Room AC (RAC) Retirement with replacement (per AC unit)				7.37%		0.000	0.000	0.000	0.500		\$65.00	Detached SF homes with room AC	49.4%	24.4%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	13693	1.65%	226.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	3.6%	69.6%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	11196	11.40%	1276.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	3.6%	66.9%

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Measure	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	11196	4.92%	551.0	0.000	0.700	0.100	0.700	12	\$822.00	Attached SF existing homes with heat pump	3.6%	15.9%
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	13693	5.43%	744.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Attached SF existing homes with heat pump	3.6%	15.9%
720	GSHP w/ Desuperheater	SFA	ROB	15102	7.99%	1207.0	0.000	0.700	0.400	0.700	- 30	\$11,300.00	Attached SF existing homes with heat pump	3.6%	15.9%
721	Ductless Mini-Split Heat Pumps	SFA	ROB	11196	29.75%	3331.0	4.400	0.700	0.500	0.700	15	\$1,200.00	Attached SF existing homes with heat pump	3.6%	15.9%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	11196	5.98%	670.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	3.6%	15.9%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	1091	11.46%	125.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Attached SF homes with Central AC	37.5%	15.9%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	1091	16.04%	175.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Attached SF homes with Central AC	37.5%	15.9%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1527	9.95%	152.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	37.5%	53.1%
726	Furnace High Efficiency Fan	SFA	Retrofit	1527	29.21%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	50.0%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	1527	1.44%	22.0	0.000	0.000	0.000	0.700	15	\$25.00	Attached SF homes with Central AC	37.5%	69.6%
728	Furnace Whistle	SFA	Retrofit	-	-	119.0 353.0	0.050	1.000	0.050	1.000 0.580	15 4	\$2.00	Attached SF homes with non-electric furnace	50.0%	10.0%
729 730	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	SFA SFA	ROB ROB	353 353	100.00%	26.0	0.000	0.000	1.103 0.000	0.580	4	\$65.00 \$65.00	Attached SF homes with room AC Attached SF homes with room AC	87.5% 87.5%	24.4% 24.4%
730	Programmable Thermostat (ASHP)	MF	Retrofit	3710	0.67%	25.0	0.000	1.000	0.000	1.000	4	\$65.00	MF homes with heat pump	87.5%	64.2%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	3710	8.30%	308.0	0.000	0.700	0.000	0.700	7	\$100.00	MF homes with heat pump	0.0%	66.9%
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	3056	5.10%	156.0	0.000	0.700	0.000	0.700	12	\$822.00	MF homes with heat pump	0.0%	15.9%
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	3056	6.94%	212.0	0.000	0.700	0.000	0.700	12	\$1,644.00	MF homes with heat pump	0.0%	15.9%
735	GSHP w/ Desuperheater	MF	ROB	6306	-8.29%	-523.0	0.000	0.700	0.200	0.700	30	\$11,300.00	MF homes with heat pump	0.0%	15.9%
736	Ductless Mini-Split Heat Pumps	MF	ROB	3056	20.62%	630.0	1.500	0.700	0.100	0.700	15	\$1,200.00	MF homes with heat pump	0.0%	15.9%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	3056	-27.62%	-844.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	0.0%	15.9%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	619	11.47%	71.0	0.000	0.000	0.000	0.700	14	\$1,333.00	MF homes with Central AC	32.8%	15.9%
739	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	MF	ROB	619	15.99%	99.0	0.000	0.000	0.000	0.700	14	\$2,407.00	MF homes with Central AC	32.8%	15.9%
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	866	9.93%	86.0	0.000	0.000	0.000	0.700	7	\$50.00	MF homes with Central AC	32.8%	53.1%
741	Furnace High Efficiency Fan	MF	Retrofit	866	51.50%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	MF homes with non-electric furnace	38.8%	10.0%
742	Programmable Thermostat (CAC)	MF	Retrofit	866	-1.85%	-16.0	0.000	0.000	0.000	0.700	15	\$25.00	MF existing homes with central AC	32.8%	64.2%
743	Furnace Whistle	SFD	Retrofit	-	-	119.0	0.050	1.000	0.050	1.000	15	\$2.00	MF homes with non-electric furnace	38.8%	10.0%
744 745	Room AC (RAC) Retirement with no replacement (per AC unit) Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB ROB	353 353	100.00%	353.0 26.0	0.000	0.000	1.103	0.580	4	\$65.00	MF homes with room AC MF homes with room AC	79.1%	24.4%
745 800	Whole House	МГ	ROB	333	7.37%	26.0	0.000	0.000	0.000	0.560	4	\$65.00	MF nomes with room AC	79.1%	24.4%
801	Direct (Real Time) Feedback	SED	Retrofit	31283	6.15%	1923.9	1.550	0.700	1.550	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	8.7%	2.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	31283	2.23%	697.6	0.562	0.700	0.562	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	8.7%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	8233	6.15%	506.3	0.408	0.700	0.408	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	58.5%	2.0%
804	Indirect Feedback (O-Power)	SFD	Retrofit	8233	2.23%	183.6	0.148	0.700	0.148	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	58.5%	2.0%
805	Direct (Real Time) Feedback	SFD	Retrofit	7952	6.15%	489.0	0.394	0.700	0.394	0.580	3	\$140.00	Detached SF existing homes with non-electric heat and room AC	15.8%	2.0%
806	Indirect Feedback	SFD	Retrofit	7952	2.23%	177.3	0.143	0.700	0.143	0.580	2	\$22.50	Detached SF existing homes with non-electric heat and room AC	15.8%	2.0%
807	Direct (Real Time) Feedback	SFA	Retrofit	24223	6.15%	1489.7	1.200	0.700	1.200	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	10.7%	2.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	24223	2.23%	540.2	0.435	0.700	0.435	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	10.7%	2.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	6868	6.15%	422.4	0.340	0.700	0.340	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	26.8%	2.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	6868	2.23%	153.2	0.123	0.700	0.123	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	26.8%	2.0%
811	Direct (Real Time) Feedback	SFA	Retrofit	6723	6.15%	413.5	0.333	0.700	0.333	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	12.5%	2.0%
812	Indirect Feedback (O-Power)	SFA	Retrofit	6723	2.23%	149.9	0.121	0.700	0.121	0.580	2	\$22.50	Attached SF existing homes with non-electric heat and room AC	12.5%	2.0%
813	Direct (Real Time) Feedback	MF	Retrofit	11278 11278	6.15% 2.23%	693.6	0.559	0.700	0.559 0.203	0.700	2	\$140.00 \$22.50	MF existing homes with electric heat and central AC	20.9%	2.0%
814 815	Indirect Feedback (O-Power) Direct (Real Time) Feedback	MF	Retrofit	3901	6.15%	251.5 239.9	0.203	0.700	0.203	0.700	2	\$22.50 \$140.00	MF existing homes with electric heat and central AC MF existing homes with non-electric heat and central AC	20.9%	2.0%
815 816	Indirect Feedback (O-Power)	MF	Retrofit	3901	2.23%	239.9	0.195	0.700	0.195	0.700	2	\$140.00	MF existing homes with non-electric heat and central AC	10.4%	2.0%
817	Direct (Real Time) Feedback	MF	Retrofit	3983	6.15%	245.0	0.197	0.700	0.197	0.700	3	\$140.00	MF existing homes with non-electric heat and comm AC	22.4%	2.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	3983	2.23%	88.8	0.072	0.700	0.072	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	22.4%	2.0%
900	New Construction											ç			
901	Residential New Construction-Tier 1	SFD	NC	20791	15.00%	3118.7	1.335	0.700	0.510	0.700	15	\$4,271.00	New construction detached SF homes w/ electric heat and Central AC	10.0%	0.0%
902	Residential New Construction-Tier 2	SFD	NC	20791	30.00%	6237.3	2.670	0.700	1.020	0.700	15	\$6,406.50	New construction detached SF homes w/ electric heat and Central AC	10.0%	0.0%
903	Residential New Construction-Tier 1	SFD	NC	8910	15.00%	1336.5	0.105	0.700	0.405	0.700	15	\$3,752.00	New construction detached SF homes w/ non-electric heat and Central	60.0%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	8910	30.00%	2673.0	0.210	0.700	0.810	0.700	15	\$5,628.00	New construction detached SF homes w/ non-electric heat and Central	60.0% 20.0%	0.0%
905 906	Residential New Construction Tier 1 Residential New Construction Tier 2	MF	NC NC	10028 10028	15.00% 30.00%	1504.2 3008.4	0.405	0.700	0.270 0.540	0.700	15 15	\$2,135.50 \$3,203.25	New construction MF homes with electric heat and central AC New construction MF homes with electric heat and central AC	20.0%	0.0%
906 907	Residential New Construction Tier 2 Residential New Construction Tier 1	MF	NC	4227	<u>30.00%</u>	634.1	0.135	0.700	0.340	0.700	15	\$3,203.25 \$1,876.00	New construction MF nomes with electric heat and central AC. New construction MF homes with non-electric heat and Central AC.	20.0%	0.0%
	Residential New Construction Tier 2	MF	NC	4227	30.00%	1268.1	0.135	0.700	0.480	0.700	15		New construction MF homes with non-electric heat and Central AC	10.0%	0.0%

Measure	assumptions Sources - West Penn								Per Unit						
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC		% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
100	Water Heating End Use							*See CF		*See CF					CF Note 1: The coincidence factor for this energy efficiency measure was set to
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	Note 1	PA TRM	Note 1	PA TRM	GDS research	WPP	PA Baseline	<ol> <li>because the kW demand impact for this measure was already on a coincident peak basis.</li> </ol>
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	WPP	WPP	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	
106	Heat Pump Water Heaters- 2.3 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	WPP	PA Baseline	costs uses the \$925 for a 2.0 water heater and adds \$50 premium for a 2.3
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	costs uses \$3/foot from the Mid-Atlantic TRM and assumes average of 6 fr/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	WPP/PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP/PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
110	Water Heater Tank Wrap	SFD	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	WPP	PA Baseline	
111	Efficient Electric Water Heaters- 0.93 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
112	Efficient Electric Water Heaters- 0.94 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
113	Efficient Electric Water Heaters- 0.95 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	WPP	WPP	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	
116	Heat Pump Water Heaters- 2.3 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	WPP	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$3/ft at an estimated 6 LF total
118	Low Flow Showerheads- 1.5 GPM	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	WPP/PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP/PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	WPP	PA Baseline	
121	Efficient Electric Water Heaters- 0.93 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
122	Efficient Electric Water Heaters- 0.94 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
123	Efficient Electric Water Heaters- 0.95 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	PPL (email)	WPP	WPP	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	
126	Heat Pump Water Heaters- 2.3 Energy Factor	MF	ROB		-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	GDS estimate	WPP	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	1	1	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$3/ft at an estimated 6 LF total
128	Low Flow Showerheads- 1.5 GPM	MF	Retrofit		-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Google	WPP/PA TRM	PA Baseline	1.6 eligible showerheads per home is assumed from PA TRM and is factored into base saturation calculation
129	Low Flow Faucet Aerators	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	MID-ATL TRM	WPP/PA TRM	PA Baseline	3.5 eligible faucets per homes is assumed from PA TRM and is factored into base saturation calculation
130	Water Heater Tank Wrap	MF	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	Vermont TRM	WPP	PA Baseline	
200 201	Lighting Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
202	Electroluminescent Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	GDS	calculation PA TRM	GDS	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	Estimate GDS	PA TRM	GDS	PA TRM	Lowe's	PA Baseline	PA Baseline	
204	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	Estimate CT Lighting CF Report	PA TRM	Estimate PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
205	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
206	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFD	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
207	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
208	ENERGY STAR LEDs - General Service Lamps	SFD	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
209	ENERGY STAR LEDs -Reflector Lamp	SFD	ROB	-	-	MID-ATL TRM PA TRM /	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
210	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFD	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
211	ENERGY STAR Torchieres	SFD	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
212	ENERGY STAR Holiday Lights	SFD	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
213	Residential Occupancy Sensors- 14 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.hing.com/shopping/pr180-11w-decom-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76128E5A37AB85530112q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&HORM=CPCA&dppc=16 http://www.hing.com/shopping/or 180-11w-decom-passive-infrared-wall-switch-
214	Residential Occupancy Sensors 19 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	nttp://www.oing.com/snopping/pr100-110-40cora-passave-intrarec-waii-switch- occupancy-sensor /where-to- buy/A761028E5A37AB85350112q=Residential+Occupancy+Senson&dpf=0&d pq=Residential%2bCccupancy%2bSensor&FORM=CPCA&dpc=16 http://www.bing.com/shopping/pr180-11n-40con-passive-infrared-wall-switch- http://www.bing.com/shopping/pr180-11n-40con-passive-infrared-wall-switch-
215	Residential Occupancy Sensors- 23 W CFL	SFD	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	occupancy-sensor/where-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&lpf=0&l pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&lppc=16
216	Ceiling Fan with ENERGY STAR Light Fixture	SFA	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
217	Electroluminescent Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Amazon.com	PA Baseline	PA Baseline	
218	LED Nightlight	SFA	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Lowe's	PA Baseline	PA Baseline	
219	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
220	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
221	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	SFA	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
222	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	SFA	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
223	ENERGY STAR LEDs - General Service Lamps	SFA	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM MID-	Home Depot	GDS Estimate	PA Baseline	
224	ENERGY STAR LEDs -Reflector Lamp	SFA	ROB	-	-	MID-ATL TRM PA TRM /	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM PA TRM /	PA TRM	ATL TRM	Home Depot	GDS Estimate	PA Baseline	
225	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	SFA	ROB	GDS estimate	-	GDS calculation PA TRM /	PA TRM / GDS calculation	PA TRM	GDS calculation PA TRM /	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
226	ENERGY STAR Torchieres	SFA	ROB	GDS estimate	-	GDS calculation	PA TRM / GDS calculation	PA TRM GDS	GDS calculation	PA TRM GDS	PA TRM	Home Depot	GDS Estimate	PA Baseline EnergyStar Market	
227	ENERGY STAR Holiday Lights	SFA	ROB	-	-	PA TRM	PA TRM	Estimate	PA TRM	Estimate	PA TRM	Lowe's	GDS Estimate	Penetration Summary	
228	Residential Occupancy Sensors- 14 W CFL	SFA	Retrofit	÷	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37A188353011?q=Residential+Occupancy+Sensors&Ipf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
229	Residential Occupancy Sensors 19 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar6/D28E55A37A188353011?q=Residential+Occupancy+Sensors&tpf=0& pq=Residential%2b1ccupancy%2bSensors&FORM=CPCA&ppp=16 http://www.bing.com/shopping/ca150/14b-12b-12b-12b-12b-12b-12b-12b-12b-12b-12
230	Residential Occupancy Sensors- 23 W CFL	SFA	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar6/D28Ei5A37A188535011?q=Residential+Occupancy+Sensors&tpf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
231	Ceiling Fan with ENERGY STAR Light Fixture	MF	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	Energy Star calculator / GDS calculation	PA TRM	PA TRM	Energy Star calculator	PA Baseline	PA Baseline	Base saturation is determined from ceiling fans in survey and assumes only half of fans have a light fixture
232	Electroluminescent Nightlight	MF	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Amazon.com	PA Baseline	PA Baseline	
233	LED Nightlight	MF	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Lowe's	PA Baseline	PA Baseline	
234	ENERGY STAR CFL Bulbs (screw-in) 60 Watt Incan. To a 14 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	

Measure .	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
235	ENERGY STAR CFL Bulbs (screw-in) 75 Watt Incan. To a 19 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
236	ENERGY STAR CFL Bulbs (screw-in) 100 Watt Incan. To a 23 Watt CFL	MF	ROB	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
237	ENERGY STAR Indoor Fixture (hard-wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	PA Baseline	
238	ENERGY STAR LEDs - General Service Lamps	MF	ROB	-	-	PA TRM / GDS calculation	PA TRM / GDS calculation	CT Lighting CF Report	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
239	ENERGY STAR LEDs -Reflector Lamp	MF	ROB	-	-	MID-ATL TRM	MID-ATL TRM	CT Lighting CF Report	MID-ATL TRM	PA TRM	MID- ATL TRM	Home Depot	GDS Estimate	PA Baseline	
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	PA Baseline	PA Baseline	
241	ENERGY STAR Torchieres	MF	ROB	GDS estimate	-	PA TRM / GDS calculation	PA TRM / GDS calculation	PA TRM	PA TRM / GDS calculation	PA TRM	PA TRM	Home Depot	GDS Estimate	PA Baseline	
242	ENERGY STAR Holiday Lights	MF	ROB	-	-	PA TRM	PA TRM	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Lowe's	GDS Estimate	EnergyStar Market Penetration Summary	
243	Residential Occupancy Sensors- 14 W CI-L	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar6D28E5A37AB83530112q=Residential+Occupancy+Sensors&Hpf=0&1 pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
244	Residential Occupancy Sensors 19 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/Ar0/D28E5A37AB83530112q=Residential+Occupancy+Sensors&Hpf=0&I pq=Residential%2bOccupancy%2bSensors&FORM=CPCA&dppc=16
245	Residential Occupancy Sensors- 23 W CFL	MF	Retrofit	-	-	PA TRM	PA TRM	CT Lighting CF Report	PA TRM	PA TRM	PA TRM	Bing.com	PA Baseline	EnergyStar Market Penetration Summary	http://www.bing.com/shopping/pr180-11w-decora-passive-infrared-wall-switch- occupancy-sensor/where-to- buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&dpf=0&d pq=Residential%2bOccupancy%2bSensors&EFORM=CPCA&dppc=16
300	Appliances											PECO (email			
301	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	from Nicholas DeDominicis) PECO (email	WPP	PA Baseline	
302	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	from Nicholas DeDominicis)	WPP	PA Baseline	
303 304	Energy Star top mount freezer without door ice Energy Star side mount freezer without door ice	SFD SFD	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
305 306	Energy Star bottom mount freezer without door ice	SFD	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
306	Energy Star top mount freezer with door ice Energy Star side mount freezer with door ice	SFD	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
308	Energy Star upright with manual defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP, PA	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	Analysis WPP, PA Analysis	PA Baseline	
310	Energy Star chest freezer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP	PA Baseline	
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	WPP	EnergyStar Market Penetration Summary	
312	Energy Star Electric Clothes Dryer with Moisture Sensor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	WPP	PECO 2011	
313 314	ENERGY STAR Clothes Washers- with Electric Heat ENERGY STAR Clothes Washers- with Gas Heat	SFD	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	
314	ENERGY STAR Clothes Washers- with Gas Heat ENERGY STAR Dishwashers- with Electric Water Heating	SFD	ROB	-	-	EnergyStar	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	EnergyStar	WPP	PA Baseline PA Baseline	
315	ENERGY STAR Dishwashers- with Gas Heat	SFD	ROB	-	-	Calculator EnergyStar Calculator	PA TRM PA TRM	PA TRM	PA TRM PA TRM	PA TRM	PA TRM	Calculator EnergyStar Calculator	WPP	PA Baseline PA Baseline	
317	ENERGY STAR Room Air Conditioners	SFD	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
318	Energy Star Exhaust Fans	SFD	ROB	-	-	Calculator Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	Calculator EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
319	Energy Star Residential Whole House Fans	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search2q=whole+house+fan&form=QBRE&c q=whole+house+fan&iad=&cct=&cq=n&pq=whole+house+fan&sp=&crt=Con pletions&ct=&spv=&sl=E≻=&sst=*=AAAAAAAAAx0y0
320	Refrigerator / Freezer Recycling and Replacement With a New Unit	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	WPP	PA Baseline	
321	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	WPP	PA Baseline	
322	Energy Star top mount freezer without door ice Energy Star side mount freezer without door ice	SFA	ROB		-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator: EE sat. of all primary refrigerators
324	Energy Star bottom mount freezer without door ice	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
325	Energy Star top mount freezer with door ice Energy Star side mount freezer with door ice	SFA SFA	ROB	-	-	PA TRM PA TRM	PA TRM DA TRM	PA TRM	PA TRM DA TRM			MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
320	Linergy star Suc mount neezer with door ice	3PA	NOD			PA IRM	PA IKM	TA IKM	TA IKM	TA IKM	TA IKM	MID-AIL IKM	wPP	FA Dascline	pase sat or this type or reingerator, is sat, or all primary reingerators

Measure .	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life		Base Saturation	EE Saturation	Notes
327	Energy Star upright with manual defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP, PA Analysis	PA Baseline	
328	Energy Star upright with automatic defrost	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	WPP, PA Analysis	PA Baseline	
329	Energy Star chest freezer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP	PA Baseline	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	WPP	EnergyStar Market Penetration Summary	
331 332	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	SFA SFA	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	WPP WPP	PECO 2011 PA Baseline	
333	ENERGY STAR Clothes Washers- with Gas Heat	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	
334	ENERGY STAR Dishwashers- with Electric Water Heating	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
335	ENERGY STAR Dishwashers- with Gas Heat	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
338	Energy Star Residential Whole House Fans	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&qs=n&pq=whole+house+fan&sp=&ert=Com pletions&tk=&spv=&sl=E≻=&st=*=AAAAAAAAA
339	Refrigerator / Freezer Recycling and Replacement With a New Unit	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	WPP	PA Baseline	
340	Refrigerator / Freezer Retirement (and Recycling) - No Replacement	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PECO (email from Nicholas DeDominicis)	WPP	PA Baseline	
341 342	Energy Star top mount freezer without door ice Energy Star side mount freezer without door ice	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
343	Energy Star bottom mount freezer without door ice	MF MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM MID-ATL TRM	WPP WPP	PA Baseline PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
345	Energy Star top mount freezer with door ice Energy Star side mount freezer with door ice	MF	ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	MID-ATL TRM	WPP	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators
346	Energy Star upright with manual defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP, PA Analysis	PA Baseline	
347	Energy Star upright with automatic defrost	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Lowe's	WPP, PA Analysis	PA Baseline	
348	Energy Star chest freezer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot/Lowe's	WPP	PA Baseline	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	EnergyStar Calculator	WPP	EnergyStar Market Penetration Summary	
350 351	Energy Star Electric Clothes Dryer with Moisture Sensor ENERGY STAR Clothes Washers- with Electric Heat	MF	ROB ROB	-	-	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	PA TRM PA TRM	Home Depot MID-ATL TRM	WPP WPP	PECO 2011 PA Baseline	
352	ENERGY STAR Clothes Washers- with Gas Heat	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	
353	ENERGY STAR Dishwashers- with Electric Water Heating	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
354	ENERGY STAR Dishwashers- with Gas Heat	MF	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
355	ENERGY STAR Room Air Conditioners	MF	ROB	-	-	EnergyStar Calculator Codes and	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	PA Baseline	
356	Energy Star Exhaust Fans	MF	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*See CF Note 1	Vermont TRM	*See CF Note 1	Vermont TRM	EnergyStar 2011 Savings and Costs report	GDS Estimate	GDS Estimate	
357	Energy Star Residential Whole House Fans	MF	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	http://www.bing.com/shopping/search?q=whole+house+fan&form=QBRE&a q=whole+house+fan&aid=&ct=&q=a&pq=whole+house+fan&sp=&rt=Com pletions&rk=&spv=&sl=E≻=&st=*=AAAAAAA#x0y0
400	Electronics ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-	WPP	EnergyStar Market	Savings - PA TRM p.122
402	ENERGY STAR Copier	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar Best Buy	WPP, GDS	Penetration Summary EnergyStar Market	
403	ENERGY STAR Fax Machine	SFD	ROB		-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Estimate WPP, GDS	Penetration Summary EnergyStar Market	
404	ENERGY STAR Monitor	SFD	ROB		-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Estimate WPP, First	Penetration Summary EnergyStar Market	Savings - PA TRM p.122
405	ENERGY STAR Multifunction	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-	Energy WPP, GDS	Penetration Summary EnergyStar Market	
406	ENERGY STAR Printer	SFD	ROB	_	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Cited EnergyStar Best Buy	Estimate WPP, GDS	Penetration Summary EnergyStar Market	
407	>50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	Estimate	Penetration Summary Codes and Standards Enhancement Initiative	
408	<50 in television	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	Codes and Standards Enhancement Initiative	
409	Smart Strip Plug Outlets	SFD	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
410	ENERGY STAR Computer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP	EnergyStar Market Penetration Summary	
												Cited EnergyStar		renetration Summary	

Measure /	Assumptions Sources - West Penn								-		_				
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
412	ENERGY STAR Fax Machine	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
413	ENERGY STAR Monitor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, First Energy	EnergyStar Market Penetration Summary	
414	ENERGY STAR Multifunction	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
415	ENERGY STAR Printer	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
416	>50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	Codes and Standards Enhancement Initiative	
417	<50 in television	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	Codes and Standards Enhancement Initiative	
418	Smart Strip Plug Outlets	SFA	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	VERMONT TRM	GDS Estimate	GDS Estimate	
419	ENERGY STAR Computer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
421	ENERGY STAR Fax Machine	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
422	ENERGY STAR Monitor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, First Energy	EnergyStar Market Penetration Summary	
423	ENERGY STAR Multifunction	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
425	>50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	WPP	Codes and Standards Enhancement Initiative	
426	<50 in television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator VERMONT	WPP	Codes and Standards Enhancement Initiative	
427	Smart Strip Plug Outlets	MF	Retrofit	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	TRM	GDS Estimate	GDS Estimate	
501	High Efficiency Two-Speed Pool Pump	SFD	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool; savings PA and Mid Atlantic TRMs Base sat. assumes that half of homes with a pool/spa pump have a pool; PA
502	Variable Speed Pool Pumps	SFD	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
503	High Efficiency Two-Speed Pool Pump	SFA	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool
504	Variable Speed Pool Pumps	SFA	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
505	High Efficiency Two-Speed Pool Pump	MF	ROB	-	-	PA TRM	MID-ATL TRM	PA TRM	MID-ATL TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool
506	Variable Speed Pool Pumps	MF	ROB	-	-	PA TRM / Ohio TRM	PA TRM / Ohio TRM	PA TRM	PA TRM / Ohio TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - $kW_{ss}$ and $kW_{VFD}$ parameters taken from Ohio TRM
601	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
603	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
606	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.42/sq ft (adjusted from Navigant's R19 value) multiplied by square footage estimate (from West Penn Power)
607	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
608	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate		RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure	Navigant 2011.	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
613	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
617	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
619	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
620	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat: based on survey (2.93% of homes w/ no attic insulation)
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
630	ENERGY STAR Windows	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
641	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
647	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
652	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
655	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
657	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power); EE sat. based on survey (2.93% of homes w/ no attic insulation)
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$2.69/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
662	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
663	ENERGY STAR Windows	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM GDS	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.55/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$1.86/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
666	HVAC Duct Scaling (Cost per typical single-family home)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq fr (from Navigant) multiplied by square footage estimate (from West Penn Power)
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
670	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.51/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
674	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	
675	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	GDS Measure Life Report	Navigant 2011, West Penn	WPP	PA Baseline	\$0.42/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.41/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigant 2011, West Penn	WPP	PA Baseline	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
680	ENERGY STAR Windows	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	MID-ATL TRM	WPP	PA Baseline	\$325 per 100 square feet of windows multiplied by square footage
681	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database, GDS Adjustment for house size	WPP	PA Baseline	
700	HVAC (Equipment/Controls) Programmable Thermostat (ASHP)	SED	Retrofit	RemRate		REMRate	REMRate/TRM	*See CF	REMRate/T	*See CF	PA TRM	Home Depot	WPP	WPP	
701	Programmable Thermostat (ASHP) Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	REMRate	REMRate/ I RM	Note 1 PA TRM	RM RemRate	Note 1 PA TRM	PA TRM PA TRM	Home Depot	WPP	PA Baseline	
702	** /	SFD	ROB	RemRate	-	RemRate	RemRate	PA TRM PA TRM	RemRate	PA TRM PA TRM	PA TRM PA TRM	Home Depot DEER database	WPP	PA Baseline PA Baseline	
	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)				-										
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB ROB	RemRate	-	RemRate REMRate	RemRate	PA TRM PA TRM	RemRate REMRate	PA TRM PA TRM	PA TRM PA TRM	DEER database	WPP WPP	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000
705	GSHP w/ Desuperheater Duetless Mini-Split Heat Pumps	SFD		RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email) Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	WPP	PA Baseline PA Baseline	per ton) plus \$250 premium for desuperheater " cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	WPP	PA Baseline	
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	RemRate	1	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	WPP	PA Baseline	
709	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	WPP	PA Baseline	
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	WPP	PA Baseline	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	WPP	GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	PA TRM	PA TRM	Home Depot	WPP	WPP	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	WPP	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
715	Room AC (RAC) Retirement with replacement (per AC unit)	SFD	ROB	PA TRM	1	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	WPP	WPP	
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	WPP	PA Baseline	
718	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
719	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFA	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
720	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	WPP	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
721	Ductless Mini-Split Heat Pumps	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	WPP	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase% 20Res%20HVAC%20Efficiencs%20%20HNAL%20pdf
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	WPP	PA Baseline	
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	WPP	PA Baseline	
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	RemRate	1	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	WPP	PA Baseline	
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	WPP	PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	WPP	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	PA TRM	PA TRM	Home Depot	WPP	WPP	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	WPP	GDS Estimate	
729	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
730	Room AC (RAC) Retirement with replacement (per AC unit)	SFA	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/T RM	*See CF Note 1	PA TRM	Home Depot	WPP	WPP	
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	WPP	PA Baseline	
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
734	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	MF	ROB	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	DEER database	WPP	PA Baseline	
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	WPP	PA Baseline	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Strategies to Increase Residential HVAC Efficiency in the Northeast prepared by Northeast Energy Efficiency Partnerships	WPP	PA Baseline	cost source: http://www.stacenergy.org/Closing%20Reports/Strategies%20ro%20Increase% 20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	WPP	PA Baseline	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Navigant 2011	WPP	PA Baseline	

Measure	Assumptions Sources - West Penn														
Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Use	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
740	HVAC Tune Up (Cooling Season Only Tune Up)	MF	Retrofit	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	Home Depot	WPP	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	MID- ATL TRM	MID-ATL TRM	WPP	GDS Estimate	
742	Programmable Thermostat (CAC)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T RM	PA TRM	PA TRM	Home Depot	WPP	WPP	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	WPP	GDS Estimate	
744	Room AC (RAC) Retirement with no replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
745	Room AC (RAC) Retirement with replacement (per AC unit)	MF	ROB	PA TRM	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
800	Whole House					Vermont		GDS	Vermont	GDS					
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	estimate GDS	TRM	estimate GDS	PA TRM	Vermont TRM Communication	WPP	GDS estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower Vermont	Opower	estimate GDS	Opower Vermont	estimate GDS	PA TRM	with Opower	WPP	GDS estimate	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	TRM	Vermont TRM	GDS	TRM	estimate	PA TRM	Vermont TRM Communication	WPP	GDS estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	estimate	Opower	GDS estimate	PA TRM	with Opower	WPP	GDS estimate	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
900 901	New Construction Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS	RemRate	GDS	GDS	EnergyStar	GDS estimate	GDS estimate	
902	Residential New Construction-Tier 2	SFD	NC	RemRate		RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
902	Residential New Construction-Tier 2 Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
903	Residential New Construction-Tier 1 Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
904	Residential New Construction-Fier 2 Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
					-			estimate GDS		estimate GDS	estimate GDS	Homes Report EnergyStar			
906	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
907	Residential New Construction Tier 1	MF	NC	RemRate	-	RemRate	RemRate	estimate GDS	RemRate	estimate GDS	estimate GDS	Homes Report EnergyStar	GDS estimate	GDS estimate	
908	Residential New Construction Tier 2	MF	NC	RemRate	-	RemRate	RemRate	estimate	RemRate	estimate	estimate	Homes Report	GDS estimate	GDS estimate	

Amazon: Retail prices derived from Amazon's website

Bellomy 2010 Residential Saturation Study: PPL's 2010 Residential Final Saturation Report

Best Buy: Retail prices derived from Best Buy's website

Bing.com: Retail prices derived from bing.com search results Codes and Standards Enhancement Initiative

Codes and standause innancement instative CT Lighting CP Report: Connecticut Lighting Coincidence Factor Report DEER database: California database of Energy Efficiency Resources EnergyStar: government-backed website that helps protect the environment through superior energy efficiency

EnergyStar 2011 Savings and Costs

EmergyStar 2011 awarps and Costs EmergyStar Icaliantor: service provided by EnergyStar to help estimate savings, useful life, and cost EnergyStar Homes Report EnergyStar Pretention Market Summary: shipment data collected by EnergyStar, used in calculating Energy Efficient Saturations (average of penetrations for 2008-2010)

First Energy: First Energy Saturation Study

Fust Lange - Iras Lange - Iras Lange Journalou - The measure-specific notes. GDF: GD5-sociates Calculation/Assumption. See measure-specific notes. GDF Istimate: Relied on industry experience and professional judgement due to lack of available primary research at the state/regional level. GDF Measure Life Report: SPMC and GDFS document of a set of measure life values for selected measures

Measure Ass	imptions Sources - West Penn														
Measure	Measure Name	Hom Type		Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kW)	Winter CF	Per Unit Summer Demand Savings (kW)	Summer CF	Useful Life	Measure Cost	Base Saturation	EE Saturation	Notes
	letail prices derived from Google Shopping														
	Retail prices derived from Home Depot's website														
	il prices derived from Lowe's website.														
	M: Mid-Atlantic Technical Reference Manual. Version 2.0														
	describes methods and results of ICS, commissioned by the EM&V	Forum Rese	arch Subcon	imittee to	update incr	emental costs fo	or measures								
	mation used for calculating indirect feedback hio Technical Reference Manual														
	ennsylvania Baseline study, conducted by GDS														
	nsylvania Technical Reference Manual														
	io TRM: Pennsylvania Technical Reference Manual / Ohio Technical	Reference M	fanual												
	ata calculated from PECO's residential survey														
	correspondence with representative(s) at PECO														
PPL email: co	rrespondence with representative(s) at PPL														
PPL Quarterly	Report: documents progress and effectiveness of EE&C accomplishe	ments for PP	L through e	nd of PY3,	Quarter 2										
REM/Rate: B	ilding Energy Modeling Software. Prototype homes were modeled be	ased on aver	age character	stics using	the PECO	Energy Baselin	ne Study, Februa	ry 2011							
	: Strategies to Increase Residential HVAC Efficiency in the Northeas					tnerships									
	Council for an Energy-Efficient Economy: Report on technical and p	olicy issues 1	relating to en	ergy efficie	ency										
	E Vermont Technical Reference Manual														
WPP: West Pe	nn Power Saturation Survey														

		Allocation of Annual Energy Savings by Season									
Measure Type	Load Reduction Factor (kW/kWh)	W	<sup>7</sup> inter	Summer							
		Peak	Off Peak	Peak	Off Peak						
A- Avg. Residential	0.000222	35%	35%	18%	12%						
B- Clothes Washer - Residential	0.000222	42%	21%	25%	13%						
C- Clothes Dryer - Residential	0.000222	37%	26%	21%	15%						
D - Cooling - Residential	0.002673	0%	0%	65%	35%						
D2 - Cooling - Residential 58%	0.002673	0%	0%	65%	35%						
D3 - Cooling - Residential 20%	0.002673	0%	0%	65%	35%						
D4 - Cooling - Residential 70%	0.002673	0%	0%	65%	35%						
D5 - Cooling - Residential 0/58	0.002673	0%	0%	65%	35%						
D6 - Cooling - Residential 70/58	0.002673	0%	0%	65%	35%						
E - Heat Pump - Residential	0.001958	35%	35%	18%	12%						
F - Heating - Residential	0.001242	38%	48%	8%	6%						
G - Heating-Water	0.001605	37%	32%	16%	15%						
H - Dishwasher - Residential	0.000222	28%	31%	20%	22%						
I - Lighting - Residential	0.001014	41%	55%	1%	3%						
2 - Lighting - Residential 5%	0.001014	41%	55%	1%	3%						
13 - Lighting - Residential 11%	0.001014	41%	55%	1%	3%						
4 - Lighting - Residential CFL and LED 30/8	0.001014	41%	55%	1%	3%						
- Television - Residential	0.000222	41%	17%	29%	13%						
2 - Television - Residential 28%	0.000222	41%	17%	29%	13%						
3 - Television - Residential 50%	0.000222	41%	17%	29%	13%						
K - Freezer - Residential	0.000262	18%	31%	18%	33%						
L - Refrigeration - Residential	0.000262	28%	29%	21%	22%						
2 - Refrigeration - Residential 62%	0.000262	28%	29%	21%	22%						
M - Shell Measures (Heat & Cool) - Multi-family	0.001958	35%	35%	18%	12%						
M2 - Shell Measures (Heat & Cool) - MF 70/70	0.001958	35%	35%	18%	12%						
M3 - Shell Measures (Heat & Cool) - MF 70/58	0.001958	35%	35%	18%	12%						
M4 - Shell Measures (Heat & Cool) - MF 0/100	0.001958	35%	35%	18%	12%						
N - Shell Measures (Heat & Cool) - Single family	0.001958	35%	35%	18%	12%						
N2 - Shell Measures (Heat & Cool) - SF 70/70	0.001958	35%	35%	18%	12%						
N3 - Shell Measures (Heat & Cool) - SF 70/58	0.001958	35%	35%	18%	12%						
N4 - Shell Measures (Heat & Cool) - SF 0/100	0.001958	35%	35%	18%	12%						

## Residential Load Shapes (listed by measure type)