

## **APPENDIX 2**

### **Residential Sector Data**

**APPENDIX 2.1**  
**Measure Assumptions and Sources by EDC**



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
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	15.8%	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	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	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side mount freezers without door ice	6.7%	24.5%
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	10.0%	24.5%
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%	24.5%
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	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	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$1.00	Homes with dehumidifiers	18.0%	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	34.1%	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	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	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	28.8%	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 secondary refrigerators	50.0%	7.0%
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	50.0%	7.0%
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	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	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%	6.8%
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%	6.8%
329	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	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	SFA	ROB	-	-	33.0	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	60.0%	40.3%
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	36.0%	11.7%
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	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	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	0.0%	24.5%
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%	24.5%
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	9.5%	24.5%
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	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	MF	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	12.1%	27.8%
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	36.6%	27.8%
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	7.3%	40.3%
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	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														
401	ENERGY STAR Computer	SFD	ROB	-	-	77.0	0.018	1.000	0.018	1.000	4	\$1.00	Homes with a computer	203.6%	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	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	12.1%	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	86.9%	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 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	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	165.0%	49.0%

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
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	1.7%	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	12.1%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	48.8%	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	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	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	12.1%	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	5.6%	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	30.3%	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	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	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	6.0%	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	6.0%	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	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 (Envelopes)														
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	SFD	ROB	19535	7.84%	1531.0	0.900	0.700	0.000	0.700	20	\$693.30	Detached SF existing homes with electric heat and Central AC	5.8%	91.2%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	20710	4.96%	1027.0	-0.100	0.700	0.000	0.700	25	\$1,368.27	Detached SF existing homes with electric heat and Central AC	5.8%	41.7%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	20710	5.67%	1175.0	-0.100	0.700	0.000	0.700	25	\$1,735.13	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)	SFD	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	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1291	-11.23%	-145.0	0.000	0.700	0.000	0.580	25	\$1,368.27	Detached SF existing homes with non-electric heat and room AC	14.2%	41.7%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1291	-12.78%	-165.0	0.000	0.700	0.000	0.580	25	\$1,735.13	Detached SF existing homes with non-electric heat and room AC	14.2%	41.7%
633	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 homes with non-electric heat and room AC	14.2%	43.9%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	13349	14.29%	1908.0	0.000	0.700	0.100	0.700	15	\$598.50	Attached SF existing homes with electric heat and Central AC	16.2%	77.1%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	17432	23.42%	4083.0	2.300	0.700	0.500	0.700	25	\$1,318.13	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	Measure Name	Home Type (SFA, SFD, MF)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit 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	13349	11.80%	1575.0	0.800	0.700	0.100	0.700	20	\$679.52	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	Retrofit	14384	6.28%	904.0	0.000	0.700	0.000	0.700	25	\$983.25	Attached SF existing homes with electric heat and Central AC	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	16.01%	277.0	0.000	0.700	0.600	0.700	25	\$2,265.75	Attached SF existing homes with non-electric heat and Central AC	67.5%	86.4%
649	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1514	4.03%	61.0	0.000	0.700	0.100	0.700	25	\$1,752.75	Attached SF existing homes with non-electric heat and Central AC	67.5%	43.2%
650	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1562	3.07%	48.0	0.000	0.700	0.100	0.700	25	\$2,216.31	Attached SF existing homes with non-electric heat and Central AC	67.5%	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	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1633	15.06%	246.0	0.000	0.700	0.500	0.580	25	\$1,318.13	Attached SF existing homes with non-electric heat and room AC	16.2%	86.4%
658	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1633	18.68%	305.0	0.000	0.700	0.700	0.580	25	\$1,752.75	Attached SF existing homes with non-electric heat and room AC	16.2%	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	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	5358	19.30%	1034.0	0.000	0.700	0.000	0.700	15	\$480.06	MF existing homes with electric heat and central AC	8.8%	77.1%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	5704	6.07%	346.0	0.200	0.700	0.000	0.700	25	\$1,307.48	MF existing homes with electric heat and central AC	8.8%	82.5%
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	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	1081	-0.93%	-10.0	0.000	0.700	0.000	0.700	15	\$480.06	MF existing homes with non-electric heat and central AC	54.3%	77.1%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	1088	0.64%	7.0	0.000	0.700	0.100	0.700	25	\$1,307.48	MF existing homes with non-electric heat and central AC	54.3%	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	Retrofit	19535	9.53%	1861.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	7.6%	68.8%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	19556	4.87%	777.0	0.000	0.700	0.100	0.700	12	\$822.00	Detached SF homes with heat pumps	7.6%	14.3%
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	19556	6.56%	1047.0	0.000	0.700	0.200	0.700	12	\$1,644.00	Detached SF homes with heat pumps	7.6%	14.3%
705	GSHHP 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	19556	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 (GSHHP)	SFD	ROB	19556	13.56%	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	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	88.0%	54.2%
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	107.6%	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	\$60.00	Detached SF homes with room AC	27.0%	11.7%
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	\$60.00	Detached SF homes with room AC	27.0%	11.7%
716	Programmable Thermostat (ASHP)	SFA	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%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	13349	9.30%	1241.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	0.0%	68.8%



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	Attached SF homes with Central AC	83.8%	54.2%
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	83.8%	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	36.0%	11.7%
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	36.0%	11.7%
731	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	\$100.00	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	Whole House														
801	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%
802	Indirect Feedback (O-Power)	SFD	Retrofit	30791	2.23%	686.6	0.553	0.700	0.553	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	5.8%	0.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	7679	6.15%	472.3	0.381	0.700	0.381	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	76.1%	28.0%
804	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 room 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	2.23%	108.8	0.088	0.700	0.088	0.700	2	\$22.50	MF existing homes with non-electric heat and central AC	54.3%	0.0%
817	Direct (Real Time) Feedback	MF	Retrofit	4981	6.15%	306.3	0.247	0.700	0.247	0.580	3	\$140.00	MF existing homes with non-electric heat and room AC	17.7%	28.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	4981	2.23%	111.1	0.090	0.700	0.090	0.580	2	\$22.50	MF existing homes with non-electric heat and room AC	17.7%	0.0%
900	New Construction														
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	\$6,406.50	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	11941	15.00%	1791.2	0.525	0.700	0.315	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	21.4%	0.0%
906	Residential New Construction Tier 2	MF	NC	11941	30.00%	3582.3	1.050	0.700	0.630	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	21.4%	0.0%
907	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%
908	Residential New Construction Tier 2	MF	NC	5371	30.00%	1611.3	0.120	0.700	0.420	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	46.3%	0.0%

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
100	Water Heating End Use														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	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.
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	PA Baseline	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PA Baseline	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	PA Baseline	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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														
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	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	PA TRM	PA TRM	PA TRM	Low'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	



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
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	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	
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;Ippc=16</a>
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	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	

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
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	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
300	Appliances														
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	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	Duquesne, 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	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	PA TRM	OHIO TRM	EnergyStar Calculator	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	PA Baseline	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	PA Baseline	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	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;uq=whole+house+fan&amp;aid=&amp;cl=&amp;cp=&amp;nppq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;sl=&amp;ast=AAAAAAAA&amp;xy0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;uq=whole+house+fan&amp;aid=&amp;cl=&amp;cp=&amp;nppq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;sl=&amp;ast=AAAAAAAA&amp;xy0</a>
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	Notes
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	PA TRM	PA TRM	PA TRM	Lowe's	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	PA Baseline	PA Baseline	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	Duquesne	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	PA Baseline	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	PA Baseline	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	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	Duquesne	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0</a>
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	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	PA Baseline	PA Baseline	
349	Energy Star dehumidifiers (35-45 pints/day)	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	Duquesne	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	PA Baseline	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	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	Duquesne	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report- Cited EnergyStar	PA Baseline	EnergyStar 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	PA Baseline	EnergyStar Market Penetration Summary	
404	ENERGY STAR Monitor	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	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	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

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	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 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 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 television	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PA Baseline	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	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	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>sa</sub> and kW <sub>sp</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 <sub>sa</sub> and kW <sub>sp</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	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 <sub>sa</sub> and kW <sub>sp</sub> parameters taken from Ohio TRM
600	HVAC (Invelopers)														
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	PA TRM	GDS Measure Life Report 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	PA TRM	GDS Measure Life Report 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	PA TRM	GDS Measure Life Report 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	PA TRM	GDS Measure Life Report 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	PA TRM	GDS Measure Life Report Duquesne	PA Baseline	PA Baseline	\$2.09/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

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
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	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	NAVIGANT 2011, Duquesne	PA Baseline	PA Baseline	\$2.09/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	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	NAVIGANT 2011, Duquesne	PA Baseline	PA Baseline	\$2.09/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	ENERGY STAR Windows	SFD	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
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	NAVIGANT 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/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	PA TRM	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)	Winter CF	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	\$2.09/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	\$2.09/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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$2.29/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$2.09/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.56/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigator) multiplied by square footage estimate
663	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
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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.55/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.86/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigator) multiplied by square footage estimate
670	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
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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.51/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	
675	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
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	PA Baseline	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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, Duquesne	PA Baseline	PA Baseline	\$1.82/sq ft (from Navigator) 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)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PA Baseline	PA Baseline	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	PA Baseline	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	PA Baseline	PA Baseline	Measure cost is from Navigator. Navigator cited the 2008 DEER database as the source
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	Measure cost is from Navigator. Navigator 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	<a href="http://www.gsthermal-heat-pump-resource.org/">http://www.gsthermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater

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
706	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	PA Baseline	PA Baseline	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
707	Ground Source Heat Pumps (GSHP)	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	PA Baseline	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	Navigator 2011	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	Navigator 2011	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	Home Depot	PA Baseline	PA Baseline	
711	Furnace High Efficiency Fan	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	MID-ATL TRM	MID-ATL TRM	PA Baseline	GDS Estimate	
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	REMRate/TRM	*Sec 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	
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	PA Baseline	PA Baseline	Measure cost is from Navigator. Navigator 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	PA Baseline	PA Baseline	Measure cost is from Navigator. Navigator cited the 2008 DEER database as the source
720	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PA Baseline	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	PA Baseline	PA Baseline	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	PA Baseline	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	Navigator 2011	PA Baseline	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	Navigator 2011	PA Baseline	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	PA Baseline	PA Baseline	
726	Furnace High Efficiency Fan	SFA	Retrofit	RemRate	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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/TRM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Amazon	PA Baseline	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	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
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	EDC average	PA Baseline	PA Baseline	Measure cost is an average of the other 6 EDCs
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec CF Note 1	PA TRM	Home Depot	PA Baseline	PA Baseline	
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/TRM	PA TRM	PA TRM	Home Depot	PA Baseline	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/TRM	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	Measure cost is from Navigator. Navigator 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/TRM	PA TRM	PA TRM	DEER database	PA Baseline	PA Baseline	Measure cost is from Navigator. Navigator cited the 2008 DEER database as the source
735	GSHP w/ Desuperheater	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/TRM	PA TRM	PA TRM	PPL (email)	PA Baseline	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
736	Ductless Mini-Split Heat Pumps	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/TRM	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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/TRM	PA TRM	PA TRM	PPL(email)	PA Baseline	PA Baseline	
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	RemRate	-	REMRate	REMRate/TRM	PA TRM	REMRate/TRM	PA TRM	PA TRM	Navigator 2011	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/TRM	PA TRM	PA TRM	Navigator 2011	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)	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/TRM	PA TRM	REMRate/TRM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
741	Furnace High Efficiency Fan	MF	Retrofit	RemRate	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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/TRM	PA TRM	PA TRM	Home Depot	PA Baseline	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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
800	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	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 estimate	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 estimate	Opower	GDS estimate	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 estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	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 estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	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 estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PA Baseline	Duquesne	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PA Baseline	Duquesne	
900	New Construction														
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 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
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 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 Estimate: Relyed on industry experience and professional judgement due to lack of available primary research 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

Measure Assumptions - Met-Ed

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 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	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	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	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	45.3%	0.0%
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	45.3%	11.9%
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	72.5%	85.2%
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	155.5%	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	\$105.87	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	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	44.4%	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	44.4%	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	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	MF	ROB	-	-	2106.0	0.378	1.000	0.378	1.000	14	\$8,164.00	Homes w/Electric Water Heater	67.4%	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	67.4%	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	67.4%	0.0%
127	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%
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	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	\$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	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%
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	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	\$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%
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	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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	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%

Measure Assumptions - Met-Ed

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 (kWh)	Winter CF	Per Unit Summer Demand Savings (kWh)	Summer CF	Useful Life	Incremental /Full Cost	Measure/End Use Description	Base Saturation	EE Saturation	
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	SFD	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	0.010	1.000	0.010	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%	
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	52.7%	24.6%	
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	30.7%	35.3%	
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	34.4%	35.3%	
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	47.5%	23.8%	
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	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	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	12.2%	14.8%	
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	SFA	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 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%	
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	63.7%	31.8%	
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	2.7%	31.8%	
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	16.2%	31.8%	
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%	31.8%	
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	18.0%	31.8%	
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%	
404	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%	
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	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	36.8%	69.7%	
407	>30 in television	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	48.0%	58.0%	
408	<30 in television	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	154.2%	58.0%	



Measure Assumptions - Met-Ed

Measure	Measure Name	Home Type (SFA, SFD, ME)	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
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	120.0%	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	6.3%	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	11.0%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	63.9%	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	46.7%	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	132.4%	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	82.8%	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	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	11.0%	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	44.0%	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	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	32.2%	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	117.8%	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	1.3%	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	1.3%	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	4.8%	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	4.8%	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	4.6%	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	4.6%	10.0%
600	HVAC (Envelope)														
601	Air 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	Attic 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%
603	Attic 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%
604	Attic 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%
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	18912	8.58%	1622.0	0.800	0.700	0.100	0.700	25	\$2,462.46	Detached SF existing homes with electric heat and Central AC	10.6%	52.3%
606	Wall 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	Wall 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%
608	ENERGY 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%
609	Floor 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%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	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%
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	18912	12.74%	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	Air 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%
613	Attic 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%
614	Attic 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	Attic 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%
616	Attic 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%
617	Wall 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%
618	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1541	1.88%	29.0	0.000	0.700	0.500	0.700	25	\$3,374.88	Detached SF existing homes with non-electric heat and Central AC	41.2%	85.1%
619	ENERGY 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	Floor 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%
621	Floor 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%
622	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1512	12.10%	183.0	0.000	0.700	0.300	0.700	14	\$497.62	Detached SF existing homes with non-electric heat and Central AC	41.2%	31.2%
623	Air 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%
624	Attic 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%
625	Attic 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%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1539	19.82%	305.0	0.000	0.700	0.800	0.580	25	\$3,183.18	Detached SF existing homes with non-electric heat and room AC	37.5%	92.7%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1293	4.56%	59.0	0.000	0.700	0.200	0.580	25	\$2,462.46	Detached SF existing homes with non-electric heat and room AC	37.5%	52.3%
628	Wall 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%
629	Wall 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%
630	ENERGY 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%
631	Floor 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%
632	Floor 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%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1293	1.16%	15.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	37.5%	31.2%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	11697	16.73%	1957.0	0.000	0.700	0.000	0.700	15	\$287.37	Attached SF existing homes with electric heat and Central AC	16.2%	95.9%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1295	274.05%	3549.0	0.700	0.700	0.200	0.700	25	\$1,204.35	Attached SF existing homes with electric heat and Central AC	16.2%	92.7%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1295	343.47%	4448.0	0.900	0.700	0.200	0.700	25	\$1,601.46	Attached SF existing homes with electric heat and Central AC	16.2%	92.7%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1295	358.07%	4637.0	0.900	0.700	0.200	0.700	25	\$2,070.18	Attached SF existing homes with electric heat and Central AC	16.2%	92.7%

Measure Assumptions - Met-Ed

Measure	Measure Name	Home Type (SFA, SFD, ME)	ROB vs. Retrofit vs. NC	Base Elec. Use (kWh)	% Elec. Savings	Annual Elec. Savings (kWh)	Per Unit Winter Demand Savings (kWh)	Winter CF	Per Unit Summer Demand Savings (kWh)	Summer CF	Useful Life	Incremental/Full Cost	Measure/End Use Description	Base Saturation	EE Saturation
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)	SFA	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	1248	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	1236	-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	25	\$898.38	Attached SF existing homes with non-electric heat and Central AC	33.3%	48.4%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1119	-10.46%	-117.0	0.000	0.700	0.000	0.700	25	\$1,139.25	Attached SF existing homes with non-electric heat and Central AC	33.3%	48.4%
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%
663	ENERGY STAR Windows	SFA	ROB	972	-4.53%	-44.0	0.000	0.700	0.100	0.580	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	-12.53%	-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	0.000	0.700	0.000	0.580	14	\$343.12	Attached SF existing homes with non-electric heat and room AC	45.7%	31.2%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	4154	20.70%	860.0	0.000	0.700	0.100	0.700	15	\$233.30	MF existing homes with electric heat and central AC	14.9%	95.9%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	4565	8.00%	365.0	0.000	0.700	0.000	0.700	25	\$1,301.20	MF existing homes with electric heat and central AC	14.9%	85.1%
669	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	4565	9.00%	411.0	0.000	0.700	0.000	0.700	25	\$1,650.08	MF existing homes with electric heat and central AC	14.9%	85.1%
670	ENERGY STAR Windows	MF	ROB	4154	24.77%	1029.0	0.700	0.700	0.100	0.700	20	\$526.83	MF existing homes with electric heat and central AC	14.9%	89.7%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	4154	8.57%	356.0	1.300	0.700	0.100	0.700	14	\$289.05	MF existing homes with electric heat and central AC	14.9%	31.2%
672	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	15	\$233.30	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%	-6.0	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	746	-0.94%	-7.0	0.000	0.700	0.000	0.700	25	\$1,650.08	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	0.100	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%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	823	-3.65%	-30.0	0.000	0.700	0.100	0.580	15	\$233.30	MF existing homes with non-electric heat and room AC	36.8%	95.9%
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	GSHHP 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%
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 (GSHHP)	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	1.79%	27.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with non-electric furnace	80.5%	10.0%
712	Programmable Thermostat (CAC)	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%
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	80.5%	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	47.5%	23.8%

Measure Assumptions - Met-Ed

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
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	47.5%	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%
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%
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%
720	GSHP w/ Desuperheater	SFA	ROB	13591	3.33%	453.0	0.000	0.700	0.300	0.700	30	\$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	Attached SF homes with non-electric furnace	73.3%	10.0%
727	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	MF 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%
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%
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	-25.93%	-892.0	0.000	0.700	0.100	0.700	30	\$10,700.00	MF homes with heat pump	5.2%	4.2%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	538	11.52%	62.0	0.000	0.000	0.000	0.700	14	\$1,333.00	MF homes with Central AC	48.9%	4.2%
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%
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	59.2%	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%
805	Direct (Real Time) Feedback	SFD	Retrofit	7399	6.15%	455.0	0.367	0.700	0.367	0.580	3	\$140.00	Detached SF existing homes with non-electric heat and room AC	37.5%	2.0%
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%
811	Direct (Real Time) Feedback	SFA	Retrofit	5199	6.15%	319.7	0.258	0.700	0.258	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	45.7%	2.0%
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 room AC	36.8%	2.0%
818	Indirect Feedback (O-Power)	MF	Retrofit	4392	2.23%	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														
901	Residential New Construction-Tier 1	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%
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%	0.0%
903	Residential New Construction-Tier 1	SFD	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 AC	46.3%	0.0%
904	Residential New Construction-Tier 2	SFD	NC	8505	30.00%	2551.5	0.210	0.700	0.840	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	11476	15.00%	1721.4	0.540	0.700	0.300	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	21.4%	0.0%
906	Residential New Construction-Tier 2	MF	NC	11476	30.00%	3442.8	1.080	0.700	0.600	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	21.4%	0.0%
907	Residential New Construction-Tier 1	MF	NC	4814	15.00%	722.1	0.060	0.700	0.195	0.700	15	\$1,876.00	New construction MF homes with non-electric heat and Central AC	46.3%	0.0%
908	Residential New Construction-Tier 2	MF	NC	4814	30.00%	1444.2	0.120	0.700	0.390	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	46.3%	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
100	Water Heating End Use														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Google	First Energy	PA Baseline	
119	Low Flow Faucet Aerators	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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 TRM	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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	Lighting														
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	*Sec CF Note 1	PA TRM	PA TRM	PA TRM	Amazon.com	PA Baseline	PA Baseline	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	*Sec 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	PA 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	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	PA 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	*Sec CF Note 1	PA TRM / GDS calculation	PA TRM	PA TRM	MID-ATL TRM	GDS Estimate	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
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpcc=16</a>
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	



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
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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPC.A&amp;lpgc=16</a>
300	Appliances														
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)	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	OHHO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary	
312	Energy Star Electric Clothes Drier 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	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	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	First Energy	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=3&amp;ct=&amp;cs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=3&amp;l=1&amp;esc=&amp;st=AAAAAAA#st(y)">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=3&amp;ct=&amp;cs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=3&amp;l=1&amp;esc=&amp;st=AAAAAAA#st(y)</a>
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



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
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	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary
331	Energy Star Electric Clothes Drier with Moisture Sensor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	First Energy	PECCO 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	First Energy	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	First Energy	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	First Energy	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	First Energy	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qz=&amp;sp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#st/y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qz=&amp;sp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#st/y0</a>
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	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	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	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	EnergyStar Market Penetration Summary
350	Energy Star Electric Clothes Drier with Moisture Sensor	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	First Energy	PECCO 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	First Energy	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	First Energy	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qz=&amp;sp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#st/y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qz=&amp;sp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#st/y0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-Cited EnergyStar	First Energy	EnergyStar 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	WPP, 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	PA Baseline	EnergyStar Market Penetration Summary	
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	WPP, GDS Estimate	EnergyStar Market Penetration Summary	

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	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, 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	ME, 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	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														
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	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 <sub>ac</sub> and kW <sub>vb</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	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 <sub>ac</sub> and kW <sub>vb</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	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 <sub>ac</sub> and kW <sub>vb</sub> parameters taken from Ohio TRM
600	HVAC (Envelope)														
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 Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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 Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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 Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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 Report Navigator 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigator) multiplied by square footage estimate (from First Energy); EE saturation based on 7.3% of homes without insulations

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	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)
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 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)
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	\$2.29/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/sq ft (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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigator) multiplied by square footage estimate (from 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigator) multiplied by square footage estimate (from First Energy)
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigator) multiplied by square footage estimate (from First Energy)
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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigator) multiplied by square footage estimate (from First Energy)
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 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigator) multiplied by square footage estimate (from First Energy)
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigator) multiplied by square footage estimate (from First Energy)

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
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 (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 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	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)
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	
700	HVAC (Equipment/Controls)														

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
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note-1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline
800	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	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 estimate	Vermont TRM	GDS estimate	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 estimate	Vermont TRM	GDS estimate	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 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	New Construction														
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 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
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  
 GDS: GDS Associates Calculation/ Assumption. See measure-specific notes.  
 GDS Estimate: Relyed on industry experience and professional judgement due to lack of available primary research 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  
 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 Assumptions - PECO

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
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	34.1%	10.0%
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	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	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	34.1%	10.0%
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	34.1%	10.5%
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.042	1.000	9	\$20.00	Homes w/Electric Water Heater	54.5%	78.3%
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	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%
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	16.7%	10.0%
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	16.7%	10.0%
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	16.7%	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	SFA	ROB	-	-	1914.0	0.175	1.000	0.175	1.000	14	\$925.00	Homes w/Electric Water Heater	16.7%	10.0%
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	16.7%	10.0%
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	16.7%	10.5%
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	26.7%	78.3%
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	58.3%	82.6%
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	16.7%	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%
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	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	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	16.7%	10.0%
127	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	16.7%	10.5%
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	26.7%	78.3%
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	58.3%	82.6%
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	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	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	38.4%	18.1%
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	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	\$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	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%
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	110.5%	35.8%
217	Electroluminescent Nightlight	SFA	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	38.4%	18.1%
218	LED Nightlight	SFA	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	38.4%	18.1%
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%
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	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	50.0%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	38.4%	18.1%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	38.4%	18.1%
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%

Measure Assumptions - PECO

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
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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	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														
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	40.9%	24.0%
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	40.9%	24.0%
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	31.8%	24.0%
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	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 bottom 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%
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	31.8%	22.2%
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	50.0%	17.1%
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	29.6%	46.7%
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	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	Attached SF homes with room AC	79.2%	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	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	4.2%	24.0%
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	25.0%	24.0%
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	4.2%	0.0%
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	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	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	4.2%	0.0%
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	16.7%	24.0%
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	16.7%	24.0%
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	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	\$95.00	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	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	45.8%	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	16.7%	22.2%
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	54.2%	17.1%
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	8.3%	46.7%
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	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

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
400	Electromes														
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	SFD	ROB	-	-	78.0	0.011	1.000	0.011	1.000	4	\$60.00	Homes with a fax machine	10.0%	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	80.0%	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	40.0%	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	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	\$20.00	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	ENERGY STAR Printer	SFA	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	40.0%	69.7%
416	>50 in	SFA	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	64.5%	24.1%
417	<50 in	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	193.5%	24.1%
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	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	<50 in	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	193.5%	24.1%
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 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	\$2,245.98	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%
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%
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%
621	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%
622	HVAC Duct Sealing (Cost per typical single-family home)	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%
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	2399	2.13%	51.0	0.000	0.700	0.200	0.580	15	\$766.50	Detached SF existing homes with non-electric heat and room AC	6.8%	20.0%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	3151	23.87%	752.0	0.000	0.700	0.750	0.580	25	\$1,689.05	Detached SF existing homes with non-electric heat and room AC	6.8%	88.5%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	3151	30.05%	947.0	0.000	0.700	0.900	0.580	25	\$2,245.98	Detached SF existing homes with non-electric heat and room AC	6.8%	88.5%



Measure Assumptions - PECO

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
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	3151	31.13%	981.0	0.000	0.700	0.900	0.580	25	\$2,903.34	Detached SF existing homes with non-electric heat and room AC	6.8%	88.5%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	2399	9.55%	229.0	0.000	0.700	0.300	0.580	25	\$2,245.98	Detached SF existing homes with non-electric heat and room AC	6.8%	45.5%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	3073	21.93%	674.0	0.000	0.700	0.500	0.580	25	\$2,670.30	Detached SF existing homes with non-electric heat and room AC	6.8%	72.0%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	3073	24.08%	740.0	0.000	0.700	0.600	0.580	25	\$3,386.25	Detached SF existing homes with non-electric heat and room AC	6.8%	72.0%
630	ENERGY STAR Windows	SFD	ROB	2399	-0.13%	-3.0	0.000	0.700	0.100	0.580	20	\$396.50	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	\$1,597.75	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)	SFA	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)	SFA	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	\$1,548.75	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	\$373.75	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	15	\$361.20	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	1284	1.87%	24.0	0.000	0.700	0.100	0.700	25	\$1,221.30	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	\$1,548.75	MF existing homes with non-electric heat and central AC	33.3%	72.0%
675	ENERGY STAR Windows	MF	ROB	1260	-2.54%	-32.0	0.000	0.700	0.000	0.700	20	\$373.75	MF existing homes with non-electric heat and central AC	33.3%	24.2%
676	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	1260	16.83%	212.0	0.000	0.700	0.100	0.700	14	\$263.97	MF existing homes with non-electric heat and central AC	33.3%	25.0%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	1477	-2.98%	-44.0	0.000	0.700	0.100	0.580	15	\$361.20	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	0.94%	14.0	0.000	0.700	0.000	0.580	25	\$1,221.30	MF existing homes with non-electric heat and room AC	29.2%	72.0%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	1491	1.07%	16.0	0.000	0.700	0.000	0.580	25	\$1,548.75	MF existing homes with non-electric heat and room AC	29.2%	72.0%
680	ENERGY STAR Windows	MF	ROB	1477	-3.52%	-52.0	0.001	0.700	0.001	0.580	20	\$373.75	MF existing homes with non-electric heat and room AC	29.2%	24.2%
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%
700	HVAC (Equipment/Controls)														



Measure Assumptions - PECO

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
701	Programmable Thermostat (ASHP)	SFD	Retrofit	17254	1.85%	319.0	0.000	1.000	-0.300	1.000	15	\$25.00	Detached SF homes with heat pumps	15.9%	61.8%
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	13650	9.52%	1299.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	15.9%	67.7%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	13650	5.52%	753.0	0.000	0.700	0.100	0.700	12	\$822.00	Detached SF homes with heat pumps	15.9%	8.0%
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%
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%
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	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	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%
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	19.09%	1448.0	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	ROB	1288	11.34%	146.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Attached SF homes with Central AC	37.5%	8.0%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	1288	15.92%	205.0	0.000	0.000	0.200	0.700	14	\$2,407.00	Attached SF homes with Central AC	37.5%	8.0%
725	HVAC Tune Up (Cooling Season Only Tune Up)	SFA	Retrofit	1801	9.99%	180.0	0.000	0.000	0.000	0.700	7	\$50.00	Attached SF homes with Central AC	37.5%	69.6%
726	Furnace High Efficiency Fan	SFA	Retrofit	1801	24.76%	446.0	0.114	1.000	0.114	1.000	18	\$200.00	Attached SF homes with non-electric furnace	66.7%	10.0%
727	Programmable Thermostat (CAC)	SFA	Retrofit	1834	1.80%	33.0	0.000	0.000	0.000	0.700	15	\$25.00	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	2759	30.63%	845.0	0.000	0.700	0.100	0.700	30	\$10,750.00	MF homes with heat pump	4.2%	8.0%
736	Ductless Mini-Split Heat Pumps	MF	ROB	2759	22.36%	617.0	1.400	0.700	0.200	0.700	15	\$1,200.00	MF homes with heat pump	4.2%	8.0%
737	Ground Source Heat Pumps (GSHP)	MF	ROB	2759	14.93%	412.0	0.000	0.700	0.100	0.700	30	\$10,500.00	MF homes with heat pump	4.2%	8.0%
738	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	MF	ROB	901	11.32%	102.0	0.000	0.000	0.100	0.700	14	\$1,333.00	MF homes with Central AC	37.5%	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														
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	Indirect Feedback (O-Power)	SFD	Retrofit	27504	2.23%	613.3	0.494	0.700	0.494	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	11.4%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	7346	6.15%	451.8	0.364	0.700	0.364	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	68.2%	2.0%
804	Indirect Feedback (O-Power)	SFD	Retrofit	7346	2.23%	163.8	0.132	0.700	0.132	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	68.2%	2.0%
805	Direct (Real Time) Feedback	SFD	Retrofit	6711	6.15%	412.7	0.333	0.700	0.333	0.580	3	\$140.00	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 electric heat and Central 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%
810	Indirect Feedback (O-Power)	SFA	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%
811	Direct (Real Time) Feedback	SFA	Retrofit	4354	6.15%	267.8	0.216	0.700	0.216	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	29.2%	2.0%

Measure Assumptions - PECO

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
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	6.15%	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	\$22.50	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	\$3,752.00	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														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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 peak basis.
102	Efficient Electric Water Heaters- 0.94 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	MID-ATL TRM	PECO 2011	PECO 2011	costs uses \$3/foot for the Mid-Atlantic TRM and assumes average of 6 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	PECO 2011	GDS estimate	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	PECO 2011	GDS estimate	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	PECO 2011	GDS estimate	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	
201	Lighting														
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	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 estimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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 estimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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 estimate	EnergyStar Market Penetration Summary	No occupancy sensors were identified in PECO survey; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;rpj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>

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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	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 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	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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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; <a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
300	Appliances														
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)	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

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 TRM	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0</a>	
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	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0</a>	
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	



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	PA 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	-	-	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	PECO 2011	PECO 2011	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-Cited EnergyStar	PECO 2011	EnergyStar 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	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	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	EnergyStar Market Penetration Summary	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market Penetration Summary	
407	>50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
408	<50 in	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
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	PECO 2011	EnergyStar Market Penetration Summary	
411	ENERGY STAR Copier	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	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	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	GDS estimate	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	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	GDS estimate	EnergyStar Market Penetration Summary	
416	>50 in	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
417	<50 in	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011	PECO 2011	
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	PECO 2011	EnergyStar Market Penetration Summary	
420	ENERGY STAR Copier	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	GDS estimate	EnergyStar Market 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 estimate	PECO 2011	
426	<50 in	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PECO 2011 / GDS estimate	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	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	PECO 2011 / GDS estimate	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	PECO 2011 / GDS estimate	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>in</sub> and kW <sub>sp</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	PECO 2011 / GDS estimate	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	PECO 2011 / GDS estimate	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>in</sub> and kW <sub>sp</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	PECO 2011 / GDS estimate	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	PECO 2011 / GDS estimate	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>in</sub> and kW <sub>sp</sub> parameters taken from Ohio TRM
600	HVAC (Envelope)														
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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	PA TRM	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	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	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	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. = 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*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*90.91% (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 (kWh)	Winter CF	Per Unit Summer Demand Savings (kWh)	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		\$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		\$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		\$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	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec CF Note 1	PA TRM	Home Depot	PECO 2011	PECO 2011	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	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	PA TRM	DEER database	PECO 2011	PECO 2011	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source.
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	PECO 2011	PECO 2011	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	Ultra-geothermal, Inc. Basington, NH	PECO 2011	PECO 2011	http://www.geothermal-heat-pump-resource.org/ (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
706	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	PECO 2011	PECO 2011	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	http://www.geothermal-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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	PECO 2011	PECO 2011	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
737	Ground Source Heat Pumps (GSHP)	MF	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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														
801	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	
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 estimate	Vermont TRM	GDS estimate	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 TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	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 TRM	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 estimate	Vermont TRM	GDS estimate	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														
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	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	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 estimate	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 estimate	GDS estimate	EnergyStar Homes Report	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	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	GDS estimate	GDS estimate	

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 CF Report: Connecticut Lighting Coincidence Factor Report  
 DEER database: California database of Energy Efficiency Resources

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
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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  
 GDS: GDS Associates Calculation/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: 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  
 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

Measure Assumptions - Penec

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
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	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	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	40.5%	0.0%
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	40.5%	8.8%
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.042	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%
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	42.2%	22.0%
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	42.2%	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	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	SFA	Retrofit	-	-	61.0	0.056	1.000	0.056	1.000	12	\$2.00	Homes w/Electric Water Heater	147.7%	57.5%
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	42.2%	5.9%
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	36.5%	22.0%
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	36.5%	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	36.5%	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	36.5%	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	36.5%	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	36.5%	0.0%
127	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	36.5%	8.8%
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	90.4%	84.2%
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	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	36.5%	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	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	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 Torchiere	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	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%
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	33.7%	16.9%
218	LED Nightlight	SFA	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	33.7%	16.9%
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%
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 Torchiere	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	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%
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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	28.0%
241	ENERGY STAR Torchiere	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%

Measure Assumptions - Penelac

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
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	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	Homes with side mount freezers without door ice	4.1%	20.8%
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	6.4%	20.8%
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%	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 side 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	0.010	1.000	0.010	1.000	12	\$1.00	Homes with dehumidifiers	45.6%	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	67.8%	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	39.0%	25.3%
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	59.2%	25.3%
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	22.9%	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	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	11.9%	2.9%
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	11.9%	2.9%
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	96.9%	20.8%
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	2.0%	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	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	31.8%	12.5%
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	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	11	\$270.00	Homes with electric clothes dryer	70.6%	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	34.5%	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	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 secondary refrigerators	5.7%	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 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	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	10.2%	12.5%
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	12.9%	12.5%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	9.0%	12.5%
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	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	0.023	1.000	0.023	1.000	11	\$12.00	Homes with dishwasher and gas heat	14.4%	51.5%
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	59.9%	12.1%
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	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	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	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	36.8%	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	43.1%	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	157.7%	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	85.7%	49.0%

Measure Assumptions - Penelec

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
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1,000	0.010	1,000	6	\$60.00	Homes with a copier	6.3%	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	8.4%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1,000	0.002	1,000	5	\$20.00	Homes with a desktop computer	40.8%	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	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	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	78.4%	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	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	MF	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	19.8%	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	121.0%	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	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	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	1.8%	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	1.8%	10.0%
600	HVAC (Envelopes)														
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	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	17475	5.93%	1036.0	0.000	0.700	0.000	0.700	25	\$1,223.37	Detached SF existing homes with electric heat and Central AC	1.6%	24.1%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	17475	6.79%	1186.0	0.000	0.700	0.000	0.700	25	\$1,551.38	Detached SF existing homes with electric heat and Central AC	1.6%	24.1%
611	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	16289	11.50%	1874.0	3.700	0.700	0.300	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	1.6%	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 non-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	0.000	0.700	0.000	0.700	20	\$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)	SFD	Retrofit	1663	-6.79%	-113.0	0.000	0.700	0.000	0.700	25	\$1,223.37	Detached SF existing homes with non-electric heat and Central AC	26.5%	24.1%
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1663	-7.76%	-129.0	0.000	0.700	0.000	0.700	25	\$1,551.38	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	\$497.62	Detached SF existing homes with non-electric heat and Central AC	26.5%	64.0%
623	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1553	-2.45%	-38.0	0.000	0.700	0.100	0.580	15	\$744.66	Detached SF existing homes with non-electric heat and room AC	42.8%	69.5%
624	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	1853	16.19%	300.0	0.000	0.700	0.600	0.580	25	\$1,640.03	Detached SF existing homes with non-electric heat and room AC	42.8%	99.3%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	1853	19.54%	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	42.8%	99.3%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1853	20.18%	374.0	0.000	0.700	0.800	0.580	25	\$2,819.07	Detached SF existing homes with non-electric heat and room AC	42.8%	99.3%
627	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%
629	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%
630	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%
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1410	-8.87%	-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%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1410	-10.14%	-143.0	0.000	0.700	0.000	0.580	25	\$1,551.38	Detached SF existing homes with non-electric heat and room AC	42.8%	24.1%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1553	1.42%	22.0	0.000	0.700	-0.100	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	42.8%	64.0%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	11725	14.48%	1698.0	0.000	0.700	0.000	0.700	15	\$533.40	Attached SF existing homes with electric heat and Central AC	10.0%	69.5%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	1909	191.20%	3630.0	2.000	0.700	0.500	0.700	25	\$1,174.75	Attached SF existing homes with electric heat and Central AC	10.0%	99.3%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1909	238.40%	4551.0	2.400	0.700	0.600	0.700	25	\$1,562.10	Attached SF existing homes with electric heat and Central AC	10.0%	99.3%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1909	248.14%	4737.0	2.500	0.700	0.600	0.700	25	\$2,019.30	Attached SF existing homes with electric heat and Central AC	10.0%	99.3%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1651	65.84%	1087.0	0.500	0.700	0.100	0.700	25	\$1,562.10	Attached SF existing homes with electric heat and Central AC	10.0%	29.2%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	15474	21.47%	3323.0	1.800	0.700	0.200	0.700	25	\$2,131.00	Attached SF existing homes with electric heat and Central AC	10.0%	88.8%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	15474	24.23%	3749.0	2.000	0.700	0.200	0.700	25	\$2,702.35	Attached SF existing homes with electric heat and Central AC	10.0%	88.8%



Measure Assumptions - Penec

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 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	11725	11.07%	1298.0	0.600	0.700	0.000	0.700	20	\$254.70	Attached SF existing homes with electric heat and Central AC	10.0%	85.6%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	12735	6.93%	883.0	0.000	0.700	0.000	0.700	25	\$876.30	Attached SF existing homes with electric heat and Central AC	10.0%	24.1%
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	Attic Insulation-R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1909	16.71%	319.0	0.000	0.700	0.600	0.700	25	\$1,562.10	Attached SF existing homes with non-electric heat and Central AC	18.6%	99.3%
648	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1909	17.34%	331.0	0.000	0.700	0.600	0.700	25	\$2,019.30	Attached SF existing homes with non-electric heat and Central AC	18.6%	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	SFA	ROB	1654	-2.48%	-41.0	0.000	0.700	0.000	0.700	20	\$254.70	Attached SF existing homes with non-electric heat and Central AC	18.6%	85.6%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1563	-4.99%	-78.0	0.000	0.700	0.000	0.700	25	\$876.30	Attached SF existing homes with non-electric heat and Central AC	18.6%	24.1%
654	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	1563	-5.82%	-91.0	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	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	1654	10.46%	173.0	0.000	0.700	0.100	0.700	14	\$372.26	Attached SF existing homes with non-electric heat and Central AC	18.6%	64.0%
656	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1527	-0.92%	-14.0	0.000	0.700	0.100	0.580	15	\$533.40	Attached SF existing homes with non-electric heat and room AC	37.1%	69.5%
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	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	1814	19.57%	355.0	0.000	0.700	0.600	0.580	25	\$1,562.10	Attached SF existing homes with non-electric heat and room AC	37.1%	99.3%
659	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	1814	20.34%	369.0	0.000	0.700	0.600	0.580	25	\$2,019.30	Attached SF existing homes with non-electric heat and room AC	37.1%	99.3%
660	Attic Insulation - R19 to R-60 (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	4.13%	63.0	0.000	0.700	0.000	0.580	14	\$372.26	Attached SF existing homes with non-electric heat and room AC	37.1%	64.0%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	3981	18.71%	745.0	0.000	0.700	0.100	0.700	15	\$406.98	MF existing homes with electric heat and central AC	64.0%	69.5%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	4378	8.06%	353.0	0.200	0.700	0.000	0.700	25	\$1,229.44	MF existing homes with electric heat and central AC	64.0%	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	64.0%	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	64.0%	85.6%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	3981	9.12%	363.0	1.300	0.700	0.100	0.700	14	\$297.25	MF existing homes with electric heat and central AC	64.0%	64.0%
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	778	-2.44%	-19.0	0.000	0.700	0.100	0.700	15	\$406.98	MF existing homes with non-electric heat and central AC	27.5%	69.5%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	774	-0.39%	-3.0	0.000	0.700	0.000	0.700	25	\$1,229.44	MF existing homes with non-electric heat and central AC	27.5%	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	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	846	-0.47%	-4.0	0.000	0.700	0.000	0.580	25	\$1,229.44	MF existing homes with non-electric heat and room AC	44.3%	88.8%
679	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	MF	Retrofit	846	-0.47%	-4.0	0.000	0.700	0.000	0.580	25	\$1,559.08	MF existing homes with non-electric heat and room AC	44.3%	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 homes 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	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	13288	6.81%	905.0	0.000	0.700	0.100	0.700	12	\$1,644.00	Detached SF homes with heat pumps	2.1%	26.9%
705	GSHSP w/ Desuperheater	SFD	ROB	17212	7.31%	1259.0	0.000	0.700	0.500	0.700	30	\$11,300.00	Detached SF homes with heat pumps	2.1%	26.9%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	13288	30.79%	4091.0	7.100	0.700	0.800	0.700	15	\$1,200.00	Detached SF homes with heat pumps	2.1%	26.9%
707	Ground Source Heat Pumps (GSHSP)	SFD	ROB	13288	4.90%	651.0	0.000	0.700	0.300	0.700	30	\$10,700.00	Detached SF homes with heat pumps	2.1%	26.9%
708	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFD	ROB	1281	11.48%	147.0	0.000	0.000	0.000	0.700	14	\$1,333.00	Detached SF existing homes with Central AC	28.8%	26.9%
709	Central AC (Equipment Only) - SEER 13 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	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$65.00	Detached SF homes with room AC	48.1%	12.1%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	11725	1.47%	172.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	1.4%	56.5%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	11725	9.26%	1086.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	1.4%	76.5%



Measure Assumptions - Penelac

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	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%	623.0	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														
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	6.15%	433.2	0.349	0.700	0.349	0.580	3	\$140.00	Detached SF existing homes with non-electric heat and room AC	42.8%	2.0%
806	Indirect Feedback	SFD	Retrofit	7044	2.23%	157.1	0.127	0.700	0.127	0.580	2	\$22.50	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	Indirect Feedback (O-Power)	SFA	Retrofit	21074	2.23%	470.0	0.379	0.700	0.379	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	10.0%	2.0%
809	Direct (Real Time) Feedback	SFA	Retrofit	5795	6.15%	356.4	0.287	0.700	0.287	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	18.6%	2.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	5795	2.23%	129.2	0.104	0.700	0.104	0.700	2	\$22.50	Attached SF existing homes with non-electric heat and Central AC	18.6%	2.0%
811	Direct (Real Time) Feedback	SFA	Retrofit	5668	6.15%	348.6	0.281	0.700	0.281	0.580	3	\$140.00	Attached SF existing homes with non-electric heat and room AC	37.1%	2.0%
812	Indirect Feedback (O-Power)	SFA	Retrofit	5668	2.23%	126.4	0.102	0.700	0.102	0.580	2	\$22.50	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	0.587	0.700	0.587	0.700	3	\$140.00	MF existing homes with electric heat and central AC	6.0%	2.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	11842	2.23%	264.1	0.213	0.700	0.213	0.700	2	\$22.50	MF existing homes with electric heat and central AC	6.0%	2.0%
815	Direct (Real Time) Feedback	MF	Retrofit	4111	6.15%	252.8	0.204	0.700	0.204	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	57.5%	2.0%
816	Indirect Feedback (O-Power)	MF	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 room 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														
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%
906	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%
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%	0.0%
908	Residential New Construction Tier 2	MF	NC	4523	30.00%	1356.9	0.120	0.700	0.390	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	63.0%	0.0%

Measure Assumptions Sources - Penclee

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														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
107	Electric Water Heater Pipe Insulation	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	MID-ATL TRM	First Energy	PA Baseline	
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Google	First Energy / PA TRM	PA Baseline	
109	Low Flow Faucet Aerators	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	MID-ATL TRM	First Energy / PA TRM	PA Baseline	
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CF 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	Low'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	CF 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 Assumptions Sources - Penclev

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	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	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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 / 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	GDS estimate	PA TRM	GDS estimate	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpg=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;lppc=16</a>
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 / 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 - Pencel

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	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	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	PA TRM	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	Low'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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lpcc=16</a>
300	Appliances														
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)	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	Low'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	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	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	First Energy	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	*Sec CF Note 1	Vermont TRM	*Sec 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	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;et=&amp;sp=&amp;rp=&amp;whl+house+fan&amp;sp=&amp;rr=Completions&amp;tl=&amp;sp=&amp;sl=1&amp;sc=&amp;st=&amp;ast=AAAAAAAA&amp;tdy0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;et=&amp;sp=&amp;rp=&amp;whl+house+fan&amp;sp=&amp;rr=Completions&amp;tl=&amp;sp=&amp;sl=1&amp;sc=&amp;st=&amp;ast=AAAAAAAA&amp;tdy0</a>
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	

Measure Assumptions Sources - Penelco

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	PA TRM	OHIO TRM EnergyStar Calculator	First Energy		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	First Energy		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	First Energy	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	First Energy	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	First Energy	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	First Energy	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline	
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM	*Sec CF Note 1	Vermont TRM	*Sec 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	PA TRM	PA TRM	PA TRM	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;q=whole+house+fan&amp;aid=&amp;ci=&amp;qs=&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;pv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#dly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;q=whole+house+fan&amp;aid=&amp;ci=&amp;qs=&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;pv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#dly0</a>
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	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	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	PA TRM	OHIO TRM EnergyStar Calculator	First Energy		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	First Energy		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	First Energy	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	First Energy	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	*Sec CF Note 1	Vermont TRM	*Sec 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	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;q=whole+house+fan&amp;aid=&amp;ci=&amp;qs=&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;pv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#dly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;q=whole+house+fan&amp;aid=&amp;ci=&amp;qs=&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;rk=&amp;pv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#dly0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PV2 Report-Cited EnergyStar	First Energy		EnergyStar 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	PA Baseline		EnergyStar Market Penetration Summary

Measure Assumptions Sources - Penclec

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	
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	Penclec, 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	Penclec, 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	Penclec, 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															
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	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 <sub>sp</sub> and kW <sub>vp</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	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 <sub>sp</sub> and kW <sub>vp</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	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 <sub>sp</sub> and kW <sub>vp</sub> parameters taken from Ohio TRM	
600	HVAC (Envelope)															
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	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
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	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	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 Assumptions Sources - Penclee

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	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
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

Measure Assumptions Sources - Penclev

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 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
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 Assumptions Sources - Penclec

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
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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.29/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$2.69/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.56/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.55/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.86/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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 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	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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.51/sq ft (from Navigator) 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	Navigator 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$0.42/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.41/sq ft (from Navigator) 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	Navigator 2011, First Energy	First Energy	PA Baseline	\$1.82/sq ft (from Navigator) 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 - Penclev

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
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	
701	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source
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 source
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
706	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: <a href="http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf">http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	Home Depot	First Energy	PA Baseline	
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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	*Sec CF Note 1	REMRate/TRM	*Sec CF Note 1	PA TRM	EnergyStar 2011 Savings and Costs Report	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	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	First Energy	PA Baseline	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	PPL (email)	First Energy	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	First Energy	PA Baseline	cost source: <a href="http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf">http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	REMRate/TRM	*Sec 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	*Sec CF Note 1	REMRate/TRM	*Sec 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	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	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater

Measure Assumptions Sources - Penelco

Measure	Measure Name	Home Type	ROB vs. Retrofit vs. NC	Base Elec. Usc (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
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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	Home Depot	First Energy	PA Baseline	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline
800	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	First Energy	GDS Estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	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 estimate	Vermont TRM	GDS estimate	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 estimate	Vermont TRM	GDS estimate	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 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	New Construction														
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	

Measure Assumptions Sources - Penelac

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
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  
 GDS: GDS Associates Calculation/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: 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  
 Siaeenergy.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 Assumptions - Penn Power

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
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	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	SFD	ROB	-	-	2202.0	0.202	1.000	0.202	1.000	14	\$975.00	Homes w/Electric Water Heater	42.4%	0.0%
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	42.4%	19.8%
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	461.0	0.042	1.000	0.042	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	SFA	ROB	-	-	217.0	0.020	1.000	0.020	1.000	14	\$105.87	Homes w/Electric Water Heater	35.6%	25.4%
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	35.6%	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	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	36.9%	65.9%
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	124.5%	40.8%
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	35.6%	11.8%
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	61.0%	25.4%
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	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	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	61.0%	19.8%
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	97.6%	65.9%
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	213.4%	40.8%
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	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	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	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 Torchiere	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	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	13.4%	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	64.0%	30.0%
218	LED Nightlight	SFA	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	0.024	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	\$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 Torchiere	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	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	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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	28.0%
241	ENERGY STAR Torchiere	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%

Measure Assumptions - Penn Power

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
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%
<b>300 Appliances</b>															
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	SFD	ROB	-	-	116.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with bottom mount freezers without door ice	11.2%	32.6%
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%	32.6%
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	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	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	49.7%	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	74.3%	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	39.5%	18.9%
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	Attached SF homes with room AC	29.1%	3.5%
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	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	10.9%	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	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%	32.6%
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	0.0%	32.6%
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	34.1%	32.6%
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	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	9.4%	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	SFA	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	75.5%	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	28.1%	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	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 secondary refrigerators	0.8%	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	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	5.0%	32.6%
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	0.0%	32.6%
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	29.5%	32.6%
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	0.0%	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	0.010	1.000	0.010	1.000	12	\$0.00	Homes with dehumidifiers	6.6%	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	54.6%	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	43.3%	18.9%
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	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	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%
<b>400 Electronics</b>															
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	SFD	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	44.3%	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	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	36.8%	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	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	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	77.6%	49.0%

Measure Assumptions - Penn Power

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
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1,000	0.010	1,000	6	\$60.00	Homes with a copier	6.3%	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	13.4%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1,000	0.002	1,000	5	\$20.00	Homes with a desktop computer	32.6%	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	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	MF	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	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	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	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%
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	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 (Envelopes)														
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	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	19495	11.46%	2234.0	3.400	0.700	0.200	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	9.8%	77.0%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	1382	-7.89%	-109.0	0.000	0.700	0.100	0.700	15	\$716.94	Detached SF existing homes with non-electric heat and Central AC	47.7%	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%
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%
625	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	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%
626	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	1453	24.23%	352.0	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%
627	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	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%	48.5%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1333	11.55%	154.0	0.000	0.700	0.500	0.580	25	\$2,524.30	Detached SF existing homes with non-electric heat and room AC	24.9%	86.9%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1333	13.05%	174.0	0.000	0.700	0.400	0.580	25	\$3,201.10	Detached SF existing homes with non-electric heat and room AC	24.9%	86.9%
630	ENERGY STAR Windows	SFD	ROB	1179	-3.56%	-42.0	0.000	0.700	0.100	0.580	20	\$511.55	Detached SF existing homes with non-electric heat and room AC	24.9%	87.6%
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	1053	-10.45%	-110.0	0.000	0.700	0.000	0.580	25	\$1,177.83	Detached SF existing homes with non-electric heat and room AC	24.9%	25.4%
632	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	1053	-11.97%	-126.0	0.000	0.700	-0.100	0.580	25	\$1,493.63	Detached SF existing homes with non-electric heat and room AC	24.9%	25.4%
633	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	1179	-2.21%	-26.0	0.000	0.700	0.000	0.580	14	\$497.62	Detached SF existing homes with non-electric heat and room AC	24.9%	77.0%
634	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	16134	17.89%	2886.0	0.400	0.700	0.200	0.700	15	\$729.12	Attached SF existing homes with electric heat and Central AC	22.5%	63.4%
635	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	21667	25.54%	5333.0	2.700	0.700	0.500	0.700	25	\$1,605.80	Attached SF existing homes with electric heat and Central AC	22.5%	93.9%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	21667	31.63%	6854.0	3.400	0.700	0.700	0.700	25	\$2,135.28	Attached SF existing homes with electric heat and Central AC	22.5%	93.9%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	21667	32.90%	7129.0	3.500	0.700	0.700	0.700	25	\$2,760.24	Attached SF existing homes with electric heat and Central AC	22.5%	93.9%
638	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	16134	9.89%	1596.0	0.800	0.700	0.200	0.700	25	\$2,135.28	Attached SF existing homes with electric heat and Central AC	22.5%	48.5%
639	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	20710	22.10%	4576.0	2.200	0.700	0.100	0.700	25	\$2,582.26	Attached SF existing homes with electric heat and Central AC	22.5%	86.9%
640	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	20710	24.92%	5160.0	2.500	0.700	0.200	0.700	25	\$3,274.61	Attached SF existing homes with electric heat and Central AC	22.5%	86.9%

Measure Assumptions - Penn Power

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 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	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	17395	6.31%	1097.0	-0.100	0.700	0.000	0.700	25	\$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	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1426	6.45%	92.0	0.000	0.700	0.200	0.700	25	\$3,274.61	Attached SF existing homes with non-electric heat and Central AC	40.8%	86.9%
652	ENERGY STAR Windows	SFA	ROB	1344	-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%	87.6%
653	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	1228	-8.31%	-102.0	0.000	0.700	0.000	0.700	25	\$1,197.84	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%
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	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	1197	8.02%	96.0	0.000	0.700	0.200	0.580	25	\$2,135.28	Attached SF existing homes with non-electric heat and room AC	16.3%	48.5%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1288	7.07%	91.0	0.000	0.700	0.100	0.580	25	\$2,582.26	Attached SF existing homes with non-electric heat and room AC	16.3%	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)	SFA	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	ENERGY STAR Windows	MF	ROB	4087	16.88%	690.0	0.300	0.700	0.100	0.700	20	\$297.38	MF existing homes with electric heat and central AC	11.8%	87.6%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	4087	7.29%	298.0	0.900	0.700	0.100	0.700	14	\$271.38	MF existing homes with electric heat and central AC	11.8%	77.0%
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	672	-4.61%	-31.0	0.000	0.700	0.100	0.700	15	\$349.86	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	GSHHP 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 (GSHHP)	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	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFD	ROB	987	16.21%	160.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Detached SF existing homes with Central AC	58.2%	14.7%
710	HVAC Tune Up (Cooling Season Only Tune Up)	SFD	Retrofit	1382	9.99%	138.0	0.000	0.000	0.000	0.700	7	\$50.00	Detached SF existing homes with central AC	58.2%	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	Programmable Thermostat (CAC)	SFD	Retrofit	1382	1.81%	25.0	0.000	0.000	0.000	0.700	15	\$25.00	Detached SF existing homes with Central AC	58.2%	39.2%
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	84.9%	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	29.1%	3.5%
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	29.1%	3.5%
716	Programmable Thermostat (ASHP)	SFA	Retrofit	16134	1.68%	271.0	0.000	1.000	0.000	1.000	15	\$25.00	Attached SF existing homes with heat pump	6.1%	39.2%
717	Air Source Heat Pump (Maintenance)	SFA	Retrofit	16134	9.34%	1507.0	0.000	0.700	0.000	0.700	7	\$100.00	Attached SF existing homes with heat pump	6.1%	66.8%



Measure Assumptions - Penn Power

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	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	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	20.4%	3.5%
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	20.4%	3.5%
731	Programmable Thermostat (ASHP)	MF	Retrofit	4087	0.98%	40.0	0.000	1.000	0.000	1.000	15	\$25.00	MF homes with heat pump	2.2%	39.2%
732	Air Source Heat Pump (Maintenance)	MF	Retrofit	4087	8.27%	338.0	0.000	0.700	0.000	0.700	7	\$100.00	MF homes with heat pump	2.2%	66.8%
733	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	\$822.00	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	6.53%	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														
801	Direct (Real Time) Feedback	SFD	Retrofit	30068	6.15%	1849.2	1.490	0.700	1.490	0.700	3	\$140.00	Detached SF existing homes with electric heat and Central AC	9.8%	2.0%
802	Indirect Feedback (O-Power)	SFD	Retrofit	30068	2.23%	670.5	0.540	0.700	0.540	0.700	2	\$22.50	Detached SF existing homes with electric heat and Central AC	9.8%	2.0%
803	Direct (Real Time) Feedback	SFD	Retrofit	6696	6.15%	411.8	0.332	0.700	0.332	0.700	3	\$140.00	Detached SF existing homes with non-electric heat and Central AC	47.7%	2.0%
804	Indirect Feedback (O-Power)	SFD	Retrofit	6696	2.23%	149.3	0.120	0.700	0.120	0.700	2	\$22.50	Detached SF existing homes with non-electric heat and Central AC	47.7%	2.0%
805	Direct (Real Time) Feedback	SFD	Retrofit	6493	6.15%	399.3	0.322	0.700	0.322	0.580	3	\$140.00	Detached SF existing homes with non-electric heat and room AC	24.9%	2.0%
806	Indirect Feedback	SFD	Retrofit	6493	2.23%	144.8	0.117	0.700	0.117	0.580	2	\$22.50	Detached SF existing homes with non-electric heat and room AC	24.9%	2.0%
807	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	22.5%	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	New Construction														
901	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	MF	NC	10488	30.00%	3146.4	0.840	0.700	0.540	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	26.1%	0.0%
907	Residential New Construction Tier 1	MF	NC	4085	15.00%	612.8	0.045	0.700	0.165	0.700	15	\$1,876.00	New construction MF homes with non-electric heat and Central AC	63.0%	0.0%
908	Residential New Construction Tier 2	MF	NC	4085	30.00%	1225.5	0.090	0.700	0.330	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	63.0%	0.0%

Measure Assumptions Sources - Penn Power

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														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
103	Efficient Electric Water Heaters- 0.95 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	First Energy	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	First Energy	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	PA TRM	Energy Star calculator / GDS calculation	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	
203	LED Nightlight	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Low'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	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	



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	Low'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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	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	Low'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	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	Low'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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dp=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;lppc=16</a>
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	PA TRM	PA TRM	PA TRM	Low'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	
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	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	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	<a href="http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16">http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16</a>
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	<a href="http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16">http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16</a>
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	<a href="http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16">http://www.bing.com/shopping/p/180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;dpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ippc=16</a>
300	Appliances														
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)	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	PA TRM	OHIO TRM	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	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	First Energy	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	First Energy	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	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=AAAAAAAA&amp;ty0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=AAAAAAAA&amp;ty0</a>
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	
330	Energy Star dehumidifiers (35-45 pints/day)	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	OHIO TRM	First Energy	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	First Energy	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	First Energy	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	First Energy	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	First Energy	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	First Energy	PA Baseline			
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	EnergyStar Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	First Energy	PA Baseline			
337	Energy Star Exhaust Fans	SFA	ROB	-	-	Codes and Standards Enhancement Initiative	Vermont TRM		*Sec CF Note 1	Vermont TRM	*Sec 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		*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;sp=n&amp;pq=whole+house+fan&amp;exp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#xly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;sp=n&amp;pq=whole+house+fan&amp;exp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#xly0</a>	
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	PA TRM	OHIO TRM	EnergyStar Calculator	First Energy	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	First Energy	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	First Energy	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	First Energy	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		*Sec CF Note 1	Vermont TRM	*Sec 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		*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;sp=n&amp;pq=whole+house+fan&amp;exp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#xly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;sp=n&amp;pq=whole+house+fan&amp;exp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#xly0</a>	
400	Electronics																
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-Cited EnergyStar	First Energy	EnergyStar 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	WPP	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	PA Baseline	EnergyStar Market Penetration Summary			
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	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			

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	WPP	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	EnergyStar Market Penetration Summary		
424	ENERGY STAR Printer	MF	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	Penn Power, 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															
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	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 - kWss and kWVFD 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 - kWss and kWVFD 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 - kWss and kWVFD parameters taken from Ohio TRM	
600	HVAC (Envelope)															
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	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
602	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	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	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
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	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	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	
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	
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	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	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	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	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







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	
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	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	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	
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	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	
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)															
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/T	*Sec 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	Measure cost is from Navigant. Navigant cited the 2008 DEER database as the source.	
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 source.	
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	First Energy	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater	
706	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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>	
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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	MID-ATL TRM	First Energy	GDS Estimate		
712	Programmable Thermostat (CAC)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	REMRate/T	*Sec CF Note 1	PA TRM	Home Depot	First Energy	PA Baseline		
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	First Energy	PA Baseline	
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/T	*Sec CF Note 1	PA TRM	EnergyStar 2011 Savings and Costs Report	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	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	First Energy	PA Baseline	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	PPL (email)	First Energy	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	First Energy	PA Baseline	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>	
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL(email)	First Energy	PA Baseline		



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														
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	
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  
GDS: GDS Associates Calculation/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: 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  
Navigator 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 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 Assumptions - PPL

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
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	51.0%	16.7%
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	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%	16.7%
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	51.0%	0.1%
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	51.0%	3.8%
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	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	SFD	Retrofit	-	-	461.0	0.042	1,000	0.042	1,000	9	\$20.00	Homes w/ Electric Water Heater	81.6%	57.6%
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	178.5%	89.3%
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	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%
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	45.1%	16.7%
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	45.1%	16.7%
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	45.1%	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	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	Low Flow Faucet Aerators	SFA	Retrofit	-	-	61.0	0.056	1,000	0.056	1,000	12	\$2.00	Homes w/ Electric Water Heater	157.7%	89.3%
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	45.1%	7.2%
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	72.2%	16.7%
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	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%
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	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	MF	ROB	-	-	2202.0	0.202	1,000	0.202	1,000	14	\$975.00	Homes w/ Electric Water Heater	72.2%	3.8%
127	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	72.2%	34.4%
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	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														
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	147.1%	18.3%
202	Electroluminescent Nightlight	SFD	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	91.3%	9.1%
203	LED Nightlight	SFD	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	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	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	\$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	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%
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	\$2.20	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	0.298	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	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	57.1%	28.0%
232	Electroluminescent Nightlight	MF	ROB	-	-	26.0	0.000	0.000	0.000	0.000	8	\$2.20	Homes with nightlights	91.3%	9.1%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	91.3%	9.1%
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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	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	0.2							

Measure Assumptions - PPL

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
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%
<b>310 Appliances</b>															
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	36.5%	3.7%
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	36.5%	3.7%
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	28.6%	23.8%
304	Energy Star side mount freezer without door ice	SFD	ROB	-	-	127.0	0.013	1.000	0.013	1.000	13	\$95.00	Homes with side 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	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	21.9%	11.4%
311	Energy Star dehumidifiers (35-45 pints/day)	SFD	ROB	-	-	213.0	0.010	1.000	0.010	1.000	12	\$1.00	Homes with dehumidifiers	53.4%	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	30.7%	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	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	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	7.0%	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 secondary refrigerators	19.3%	3.7%
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	19.3%	3.7%
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	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%
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	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	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	6.5%	11.4%
329	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	11.3%	11.4%
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	18.5%	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	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	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	6.3%	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	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	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	5.8%	11.4%
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	5.8%	11.4%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	10.1%	11.4%
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	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 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	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	0.0%	9.1%
<b>400 Electronics</b>															
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	SFD	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	95.6%	58.0%
408	<50 in	SFD	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	156.1%	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	120.6%	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	1.7%	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	2.5%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	Homes with a desktop computer	56.7%	72.3%

Measure Assumptions - PPL

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
414	ENERGY STAR Multifunction	SFA	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	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	SFA	ROB	-	-	481.0	0.074	0.280	0.074	0.280	15	\$1.00	Homes with a television	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	ENERGY STAR Multifunction	MF	ROB	-	-	78.0	0.011	1.000	0.011	1.000	6	\$1.00	Homes with a multifunction printer	30.3%	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	12.6%	69.7%
425	>50 in	MF	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	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	4.6%	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	2.3%	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	2.3%	10.0%
600	HVAC (Envelope)														
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	\$64.50	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	HVAC Duct Sealing (Cost per typical single-family home)	SFD	Retrofit	16852	11.92%	2099.0	4.900	0.700	0.700	0.700	14	\$497.62	Detached SF existing homes with electric heat and Central AC	18.4%	58.3%
612	Air Sealing (cost per sf of living space for a typical single-family home)	SFD	Retrofit	2520	1.47%	37.0	0.700	0.700	0.100	0.700	15	\$742.56	Detached SF existing homes with non-electric heat and Central AC	30.8%	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	\$64.50	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)	SFD	Retrofit	2520	-2.06%	-52.0	0.000	0.700	0.000	0.700	25	\$1,219.92	Detached SF existing homes with non-electric heat and Central AC	30.8%	49.8%
621	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	2520	-2.38%	-60.0	0.000	0.700	0.000	0.700	25	\$1,547.00	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	21097	15.47%	3264.0	1.100	0.700	0.200	0.580	15	\$742.56	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%	6019.0	2.100	0.700	0.700	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	ENERGY STAR Windows	SFD	ROB	21097	9.17%	1955.0	0.700	0.700	0.100	0.580	20	\$64.50	Detached SF existing homes with baseboard heat and room AC	8.9%	88.2%
631	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	21097	13.11%	2766.0	1.000	0.700	0.100	0.580	25	\$1,219.92	Detached SF existing homes with baseboard heat and room AC	8.9%	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	\$1,547.00	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	2.200	0.700	25	\$1,624.50	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	8.83%	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)	SFA	Retrofit	14140	20.93%	2960.0	1.800	0.700	0.200	0.700	25	\$4,670.75	Attached SF existing homes with electric heat and Central AC	24.6%	86.1%
641	ENERGY STAR Windows	SFA	ROB	11520	25.69%	2960.0	0.900	0.700	0.100	0.700	20	\$811.85	Attached SF existing homes with electric heat and Central AC	24.6%	88.2%
642	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	11787	1.93%	228.0	0.000	0.700	0.000	0.700	25	\$1,062.60	Attached SF existing homes with electric heat and Central AC	24.6%	49.8%
643	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	11787	2.27%	267.0	0.000	0.700	0.000	0.700	25	\$1,347.50	Attached SF existing homes with electric heat and Central AC	24.6%	49.8%
644	HVAC Duct Sealing (Cost per typical single-family home)	SFA	Retrofit	11520	11.60%	1336.0	1.800	0.700	0.300	0.700	14	\$440.64	Attached SF existing homes with electric heat and Central AC	24.6%	58.3%



Measure Assumptions - PPL

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
645	Air Sealing (cost per sf of living space for a typical single-family home)	SFA	Retrofit	1949	0.77%	15.0	0.000	0.700	0.100	0.700	15	\$646.80	Attached SF existing homes with non-electric heat and Central AC	22.0%	72.9%
646	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	2247	13.26%	298.0	0.000	0.700	0.600	0.700	25	\$1,424.50	Attached SF existing homes with non-electric heat and Central AC	22.0%	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	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	2044	5.23%	107.0	0.000	0.700	0.200	0.700	25	\$4,670.75	Attached SF existing homes with non-electric heat and Central AC	22.0%	86.1%
652	ENERGY STAR Windows	SFA	ROB	1949	-4.31%	-84.0	0.000	0.700	0.100	0.700	20	\$811.85	Attached SF existing homes with non-electric heat and Central AC	22.0%	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	0.000	0.700	25	\$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%	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%
660	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFA	Retrofit	11270	13.87%	1563.0	0.600	0.700	0.500	0.580	25	\$1,894.20	Attached SF existing homes with baseboard heat and room AC	8.5%	45.0%
661	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	18024	23.17%	4177.0	1.700	0.700	-0.100	0.580	25	\$3,683.22	Attached SF existing homes with baseboard heat and room AC	8.5%	86.1%
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	ENERGY STAR Windows	SFA	ROB	11270	20.73%	2336.0	0.900	0.700	0.400	0.580	20	\$811.85	Attached SF existing homes with baseboard heat and room AC	8.5%	88.2%
664	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFA	Retrofit	11270	12.61%	1421.0	0.600	0.700	0.000	0.580	25	\$1,062.60	Attached SF existing homes with baseboard heat and room AC	8.5%	49.8%
665	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFA	Retrofit	11270	14.69%	1655.0	0.700	0.700	-0.300	0.580	25	\$1,347.50	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 R-13 (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	ENERGY STAR Windows	MF	ROB	2960	18.51%	548.0	0.400	0.700	0.000	0.700	20	\$380.25	MF existing homes with electric heat and central AC	18.8%	88.2%
671	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	2960	19.49%	577.0	0.900	0.700	0.000	0.700	14	\$223.20	MF existing homes with electric heat and central AC	18.8%	58.3%
672	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	996	3.21%	32.0	0.000	0.700	0.000	0.700	15	\$281.40	MF existing homes with non-electric heat and central AC	18.8%	72.9%
673	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	HVAC Duct Sealing (Cost per typical multi-family home)	MF	Retrofit	996	15.16%	151.0	0.000	0.700	0.100	0.700	14	\$223.20	MF existing homes with non-electric heat and central AC	18.8%	58.3%
677	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	3037	23.41%	711.0	0.300	0.700	0.100	0.580	15	\$281.40	MF existing homes with baseboard heat and room AC	17.6%	72.9%
678	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	3527	13.89%	490.0	1.200	0.700	0.000	0.580	25	\$1,214.40	MF existing homes with baseboard heat and room AC	17.6%	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)														
701	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	9.43%	1589.0	0.000	0.700	0.000	0.700	7	\$100.00	Detached SF homes with heat pumps	11.6%	70.2%
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	13656	5.32%	726.0	0.000	0.700	0.200	0.700	12	\$822.00	Detached SF homes with heat pumps	11.6%	20.6%
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	13656	7.61%	1039.0	0.000	0.700	0.300	0.700	12	\$1,644.00	Detached SF homes with heat pumps	11.6%	20.6%
705	GSHP w/ Desuperheater	SFD	ROB	13656	19.54%	2668.0	0.000	0.700	0.000	0.700	30	\$11,300.00	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)	SFD	Retrofit	2520	2.14%	54.0	0.000	0.000	0.000	0.700	15	\$19.00	Detached SF existing homes with Central AC	48.7%	27.0%
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	66.8%	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	\$60.00	Detached SF homes with room AC	128.0%	34.8%
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	\$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%
722	Ground Source Heat Pumps (GSHP)	SFA	ROB	9365	26.63%	2494.0	0.000	0.700	0.200	0.700	30	\$10,700.00	Attached SF existing homes with heat pump	16.0%	20.6%
723	Central AC (Equipment Only) - SEER 13 to SEER 15 (3.5 tons)	SFA	ROB	1394	11.41%	159.0	0.000	0.000	0.100	0.700	14	\$1,333.00	Attached SF homes with Central AC	46.2%	20.6%
724	Central AC (Equipment Only) - SEER 13 to SEER 16 (3.5 tons)	SFA	ROB	1394	16.00%	223.0	0.000	0.000	0.100	0.700	14	\$2,407.00	Attached SF homes with Central AC	46.2%	20.6%

Measure Assumptions - PPL

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
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	GSHHP 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 (GSHHP)	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														
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)	SFD	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 baseboard heat and room AC	8.9%	0.0%
806	Indirect Feedback	SFD	Retrofit	31619	2.23%	705.1	0.568	0.700	0.568	0.580	2	\$22.50	Detached SF existing homes with baseboard heat and room AC	8.9%	8.3%
807	Direct (Real Time) Feedback	SFA	Retrofit	21404	6.15%	1316.3	1.061	0.700	1.061	0.700	3	\$140.00	Attached SF existing homes with electric heat and Central AC	24.6%	0.0%
808	Indirect Feedback (O-Power)	SFA	Retrofit	21404	2.23%	477.3	0.385	0.700	0.385	0.700	2	\$22.50	Attached SF existing homes with electric heat and Central AC	24.6%	8.3%
809	Direct (Real Time) Feedback	SFA	Retrofit	5496	6.15%	338.0	0.272	0.700	0.272	0.700	3	\$140.00	Attached SF existing homes with non-electric heat and Central AC	22.0%	0.0%
810	Indirect Feedback (O-Power)	SFA	Retrofit	5496	2.23%	122.6	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	\$4,271.00	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

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														
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 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	PPL	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	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 Note 1	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 Note 1	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 Note 1	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 TRM	PA TRM	OHIO TRM	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 Note 1	PA TRM	GDS research	PPL	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	PPL	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	PPL	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)	PPL	PPL	
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	PPL	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	PPL	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	PPL	PA Baseline	\$3/ft at an estimated 6 LP' 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	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	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
120	Water Heater Tank Wrap	SFA	Retrofit	-	-	PA TRM	PA TRM	OHIO TRM	PA TRM	OHIO TRM	PA TRM	PA TRM	PPL	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	PPL	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	PPL	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	PPL	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)	PPL	PPL	
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	PPL	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	PPL	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	PPL	PA Baseline	\$3/ft at an estimated 6 LP' 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	PPL/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	PPL/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	PA TRM	PPL	PA Baseline	
200	Lighting														
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	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	

Measure 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
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 Torchiere	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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 Torchiere	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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 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 Torchiere	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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB85350112q=Residential+Occupancy+Sensors&amp;pf=0&amp;lpq=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
300	Appliances														
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)	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	-	-	EnergyStar 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	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;ppq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA&amp;xl#0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;ppq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA&amp;xl#0</a>
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

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
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 Calculator	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	EnergyStar Calculator	PPL	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	PPL	PA Baseline	
336	ENERGY STAR Room Air Conditioners	SFA	ROB	-	-	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	PPL	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;aq=whole+house+fan&amp;aid=&amp;ci=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;t=Completions&amp;tk=&amp;rpv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRI&amp;aq=whole+house+fan&amp;aid=&amp;ci=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;t=Completions&amp;tk=&amp;rpv=&amp;sl=L&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0</a>
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	



Measure 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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	PPL	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=&amp;ct=&amp;q&amp;rs=n&amp;pq=whole+house+fan&amp;sp=&amp;ct=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;aq=whole+house+fan&amp;aid=&amp;ct=&amp;q&amp;rs=n&amp;pq=whole+house+fan&amp;sp=&amp;ct=Completions&amp;tk=&amp;spv=&amp;sl=E&amp;sc=&amp;st=&amp;ast=AAAAAAAA#sly0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-Cited EnergyStar	PPL	EnergyStar 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 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	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 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	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

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 <sub>g</sub> and kW <sub>sp</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	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 / 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 <sub>g</sub> and kW <sub>sp</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 / 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 <sub>g</sub> and kW <sub>sp</sub> parameters taken from Ohio TRM	
600	HVAC (Envelope)															
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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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
604	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	GDS Measure Life Report	PA TRM	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
605	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	PA TRM	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	PA TRM	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	DEER database	PPL		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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	GDS Measure Life Report	PA TRM	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	PA TRM	PA TRM	PPL	PA Baseline	\$1.56/sq ft (from Navigant) multiplied by square footage estimate (from PECO)

Measure 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
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 Navigant) 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	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 (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 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
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	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
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	\$1.53/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	GDS Measure Life 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	\$2.29/sq ft (from Navigant) multiplied by square footage estimate (from PECO); EE sat. based on survey (4.55% of homes w/ no attic insulation)
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	\$1.53/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	PPL	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)

Measure 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
680	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	HVAC (Equipment/Controls)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	PPL	PPL	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	PPL	PA Baseline	
703	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 13 (3.5 ton)	SFD	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
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	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
705	GSHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PPL	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
706	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: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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 estimate	REMRate/TRM	PA TRM	PA TRM	Home Depot	PPL	PPL	
713	Furnace Whistle	SFD	Retrofit	PA TRM	-	PA TRM	PA TRM	*See CF Note 1	PA TRM	*See CF Note 1	PA TRM	Amazon	PPL	GDS Estimate	
714	Room AC (RAC) Retirement with no replacement (per AC unit)	SFD	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PPL	PA Baseline	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	RemRate	-	PA TRM / EnergyStar calc.	PA TRM / EnergyStar calc.	PA TRM	PA TRM / EnergyStar calc.	PA TRM	PA TRM	GDS estimate	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 15 (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
719	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	GSHP w/ Desuperheater	SFA	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	PPL	PA Baseline	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	PPL	PA Baseline	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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	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	PPL	GDS Estimate	
727	Programmable Thermostat (CAC)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	GDS estimate	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	Room AC (RAC) Retirement with no replacement (per AC unit)	SFA	ROB	RemRate	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	GDS estimate	PPL	PA Baseline	
730	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	PA TRM	GDS estimate	PPL	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	PPL	PPL	
732	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	
733	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (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

Measure 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
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	<a href="http://www.geothermal-heat-pump-resource.org/">http://www.geothermal-heat-pump-resource.org/</a> (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	PPL	PA Baseline	cost source: <a href="http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>
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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
805	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
806	Indirect Feedback	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
807	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
808	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
809	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
810	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
811	Direct (Real Time) Feedback	SFA	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
812	Indirect Feedback (O-Power)	SFA	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
813	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
814	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
815	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
816	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
817	Direct (Real Time) Feedback	MF	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	PPL	PPL (email)	
818	Indirect Feedback (O-Power)	MF	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	PPL	PPL Quarterly Report	
900	New Construction														
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	p. 36 of PPL 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	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	
903	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	
904	Residential New Construction-Tier 2	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	PPL	GDS estimate	
905	Residential New Construction-Tier 1	MF	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS 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

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
	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) 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 PPL: data calculated from PPL's residential survey 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														

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
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	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%
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	44.2%	18.5%
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	44.2%	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	44.2%	2.4%
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	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	SFD	Retrofit	-	-	461.0	0.042	1,000	0.042	1,000	9	\$20.00	Homes w/Electric Water Heater	70.6%	62.1%
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	154.5%	60.0%
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	44.2%	7.8%
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	42.9%	18.5%
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	42.9%	18.5%
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	42.9%	18.5%
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	42.9%	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	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%
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	42.9%	13.1%
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	68.6%	62.1%
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	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%
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	64.2%	18.5%
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	64.2%	18.5%
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	64.2%	18.5%
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	64.2%	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	64.2%	2.4%
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	64.2%	2.4%
127	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	64.2%	13.1%
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	102.7%	62.1%
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	224.6%	60.0%
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	64.2%	7.8%
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	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	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 Torchiere	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	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	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	24.6%	10.9%
218	LED Nightlight	SFA	ROB	-	-	22.0	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%
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 Torchiere	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	24.6%	10.9%
233	LED Nightlight	MF	ROB	-	-	22.0	0.000	0.000	0.000	0.000	8	\$1.00	Homes with nightlights	24.6%	10.9%
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%
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%
240	ENERGY STAR Outdoor Fixture (hard wired, pin-based)	MF	ROB	-	-	81.7	0.057	0.050	0.057	0.050	20	\$20.00	Homes with outdoor fixtures	100.0%	28.0%
241	ENERGY STAR Torchiere	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%

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 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
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	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	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	5.7%	26.6%
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	17.0%	26.6%
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	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	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	19.5%	4.5%
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	13.8%	4.5%
310	Energy Star chest freezer	SFD	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest freezers	20.0%	4.5%
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	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	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	40.0%	24.5%
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	56.2%	24.5%
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	25.7%	37.0%
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	Attached SF homes with room AC	49.4%	24.4%
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	SFA	ROB	-	-	1205.0	0.241	0.620	0.241	0.620	7	\$120.00	Homes with secondary refrigerators	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	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	3.6%	26.6%
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	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	0.011	1.000	0.011	1.000	11	\$80.00	Homes with upright, manual defrost freezers	14.5%	4.5%
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	10.3%	4.5%
329	Energy Star chest freezer	SFA	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	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	SFA	ROB	-	-	224.0	0.015	1.000	0.015	1.000	10	\$250.00	Homes with clothes washer and electric heat	35.7%	24.5%
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	25.0%	24.5%
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	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	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 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	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	76.1%	26.6%
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	3.0%	26.6%
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	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	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	6.1%	4.5%
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	4.3%	4.5%
348	Energy Star chest freezer	MF	ROB	-	-	42.0	0.011	1.000	0.011	1.000	11	\$18.00	Homes with chest 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	MF	ROB	-	-	136.0	0.346	0.136	0.346	0.136	11	\$270.00	Homes with electric clothes dryer	52.2%	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	47.8%	24.5%
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	9.0%	24.5%
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	19.4%	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	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	79.1%	24.4%
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	84.2%	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	9.2%	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	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	SFD	ROB	-	-	26.0	0.004	1.000	0.004	1.000	5	\$1.00	Homes with a printer	36.8%	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	47.1%	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	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 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 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
411	ENERGY STAR Copier	SFA	ROB	-	-	73.0	0.010	1.000	0.010	1.000	6	\$60.00	Homes with a copier	6.3%	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	6.0%	6.0%
413	ENERGY STAR Monitor	SFA	ROB	-	-	14.0	0.002	1.000	0.002	1.000	5	\$20.00	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	<50 in television	SFA	ROB	-	-	136.0	0.263	0.280	0.263	0.280	15	\$1.00	Homes with a television	192.3%	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	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	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	11.8%	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	168.7%	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	16.2%	0.4%
502	Variable Speed Pool Pumps	SFD	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	16.2%	0.4%
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	1.8%	0.0%
504	Variable Speed Pool Pumps	SFA	ROB	-	-	918.0	0.621	0.000	0.621	0.270	10	\$750.00	Homes with a pool	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	HVAC (Envelope)														
601	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	6.39%	1266.0	0.700	0.700	0.000	0.700	20	\$563.82	Detached SF existing homes with electric heat and Central AC	8.7%	88.4%
609	Floor Insulation - R0 to R-13 (Cost Per Square Foot Installed)	SFD	Retrofit	21229	5.87%	1246.0	0.000	0.700	0.000	0.700	25	\$1,422.78	Detached SF existing homes with electric heat and Central AC	8.7%	47.9%
610	Floor Insulation - R0 to R-19 (Cost Per Square Foot Installed)	SFD	Retrofit	21229	6.69%	1420.0	0.000	0.700	0.000	0.700	25	\$1,804.25	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)	SFD	Retrofit	2274	13.63%	310.0	0.000	0.700	0.600	0.700	25	\$1,907.35	Detached SF existing homes with non-electric heat and Central AC	58.5%	97.2%
614	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFD	Retrofit	2274	16.75%	381.0	0.000	0.700	0.700	0.700	25	\$2,536.26	Detached SF existing homes with non-electric heat and Central AC	58.5%	97.2%
615	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFD	Retrofit	2274	17.41%	396.0	0.000	0.700	0.800	0.700	25	\$3,278.58	Detached SF existing homes with non-electric heat and Central AC	58.5%	97.2%
616	Attic Insulation - R19 to R-60 (Cost Per Square Foot installed)	SFD	Retrofit	1964	4.38%	86.0	0.000	0.700	0.200	0.700	25	\$2,536.26	Detached SF existing homes with non-electric heat and Central AC	58.5%	40.6%
617	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	2192	10.40%	228.0	0.000	0.700	0.400	0.700	25	\$4,022.03	Detached SF existing homes with non-electric heat and Central AC	58.5%	84.7%
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%
628	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFD	Retrofit	1931	12.84%	248.0	0.000	0.700	0.400	0.580	25	\$4,022.03	Detached SF existing homes with non-electric heat and room AC	15.8%	84.7%
629	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFD	Retrofit	1931	14.45%	279.0	0.000	0.700	0.400	0.580	25	\$5,100.41	Detached SF existing homes with non-electric heat and room AC	15.8%	84.7%
630	ENERGY STAR Windows	SFD	ROB	1683	-2.61%	-44.0	0.000	0.700	0.000	0.580	20	\$563.82	Detached SF existing homes with non-electric heat and room AC	15.8%	88.4%
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	Attic Insulation- R0 to R19 (Cost Per Square Foot installed)	SFA	Retrofit	18416	25.65%	4723.0	2.700	0.700	0.600	0.700	25	\$1,587.30	Attached SF existing homes with electric heat and Central AC	10.7%	97.2%
636	Attic Insulation- R0-R38 (Cost Per Square Foot installed)	SFA	Retrofit	18416	31.83%	5861.0	3.400	0.700	0.700	0.700	25	\$2,110.68	Attached SF existing homes with electric heat and Central AC	10.7%	97.2%
637	Attic Insulation R0 to R60 (Cost Per Square Foot installed)	SFA	Retrofit	18416	33.11%	6098.0	3.500	0.700	0.800	0.700	25	\$2,728.44	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%
639	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)	SFA	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 SF 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	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	SFA	Retrofit	1583	3.54%	56.0	0.000	0.700	0.200	0.700	25	\$3,656.31	Attached SF existing homes with non-electric heat and Central AC	26.8%	84.7%
651	Wall Insulation - R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1583	3.98%	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	26.8%	84.7%
652	ENERGY STAR Windows	SFA	ROB	1527	-4.13%	-63.0	0.000	0.700	0.000	0.700	20	\$544.38	Attached SF existing homes with non-electric heat and Central AC	26.8%	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%
657	Attic Insulation- R0 to R19 (Cost Per Square Foot Installed)	SFA	Retrofit	1679	17.69%	297.0	0.000	0.700	0.700	0.580	25	\$1,587.30	Attached SF existing homes with non-electric heat and room AC	12.5%	97.2%
658	Attic Insulation- R0-R38 (Cost Per Square Foot Installed)	SFA	Retrofit	1679	21.98%	369.0	0.000	0.700	0.800	0.580	25	\$2,110.68	Attached SF existing homes with non-electric heat and room AC	12.5%	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	1.95%	27.0	0.000	0.700	0.000	0.580	14	\$423.51	Attached SF existing homes with non-electric heat and room AC	12.5%	58.3%
667	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	3710	19.73%	732.0	0.000	0.700	0.000	0.700	15	\$360.36	MF existing homes with electric heat and central AC	20.9%	72.9%
668	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	4189	11.43%	479.0	0.300	0.700	0.000	0.700	25	\$1,197.50	MF existing homes with electric heat and central AC	20.9%	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	Air Sealing (cost per sf of living space for a typical multi-family home)	MF	Retrofit	866	-0.46%	-4.0	0.000	0.700	0.000	0.700	15	\$360.36	MF existing homes with non-electric heat and central AC	10.4%	72.9%
673	Wall Insulation - R0 to R11 (Cost Per Square Foot Installed)	MF	Retrofit	874	0.92%	8.0	0.000	0.700	0.000	0.700	25	\$1,197.50	MF existing homes with non-electric heat and central AC	10.4%	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	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 15 (3.5 ton)	SFD	ROB	16146	4.97%	803.0	0.000	0.700	0.200	0.700	12	\$822.00	Detached SF homes with heat pumps	6.0%	15.9%
704	Air Source Heat Pump (Equipment Only) - SEER 13 to SEER 16 (3.5 ton)	SFD	ROB	16146	6.71%	1084.0	0.000	0.700	0.200	0.700	12	\$1,644.00	Detached SF homes with heat pumps	6.0%	15.9%
705	GSHHP w/ Desuperheater	SFD	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%
706	Ductless Mini-Split Heat Pumps	SFD	ROB	16146	30.78%	4970.0	8.000	0.700	0.900	0.700	15	\$1,200.00	Detached SF homes with heat pumps	6.0%	15.9%
707	Ground Source Heat Pumps (GSHHP)	SFD	ROB	16146	11.22%	1811.0	0.000	0.700	0.400	0.700	30	\$10,700.00	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	ROB	353	100.00%	353.0	0.000	0.000	1.103	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)	SFD	ROB	353	7.37%	26.0	0.000	0.000	0.000	0.580	4	\$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%



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
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	GSHHP 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	0.050	1.000	0.050	1.000	15	\$2.00	Attached SF homes with non-electric furnace	50.0%	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	87.5%	24.4%
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	87.5%	24.4%
731	Programmable Thermostat (ASHP)	MF	Retrofit	3710	0.67%	25.0	0.000	1.000	0.000	1.000	15	\$24.98	MF homes with heat pump	0.0%	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	GSHHP 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	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	79.1%	24.4%
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	79.1%	24.4%
800	Whole House														
801	Direct (Real Time) Feedback	SFD	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	6.15%	693.6	0.559	0.700	0.559	0.700	3	\$140.00	MF existing homes with electric heat and central AC	20.9%	2.0%
814	Indirect Feedback (O-Power)	MF	Retrofit	11278	2.23%	251.5	0.203	0.700	0.203	0.700	2	\$22.50	MF existing homes with electric heat and central AC	20.9%	2.0%
815	Direct (Real Time) Feedback	MF	Retrofit	3901	6.15%	239.9	0.193	0.700	0.193	0.700	3	\$140.00	MF existing homes with non-electric heat and central AC	10.4%	2.0%
816	Indirect Feedback (O-Power)	MF	Retrofit	3901	2.23%	87.0	0.070	0.700	0.070	0.700	2	\$22.50	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	0.580	3	\$140.00	MF existing homes with non-electric heat and room 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														
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 AC	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 AC	60.0%	0.0%
905	Residential New Construction Tier 1	MF	NC	10028	15.00%	1504.2	0.405	0.700	0.270	0.700	15	\$2,135.50	New construction MF homes with electric heat and central AC	20.0%	0.0%
906	Residential New Construction Tier 2	MF	NC	10028	30.00%	3008.4	0.810	0.700	0.540	0.700	15	\$3,203.25	New construction MF homes with electric heat and central AC	20.0%	0.0%
907	Residential New Construction Tier 1	MF	NC	4227	15.00%	634.1	0.135	0.700	0.240	0.700	15	\$1,876.00	New construction MF homes with non-electric heat and Central AC	10.0%	0.0%
908	Residential New Construction Tier 2	MF	NC	4227	30.00%	1268.1	0.270	0.700	0.480	0.700	15	\$2,814.00	New construction MF homes with non-electric heat and Central AC	10.0%	0.0%



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
100	Water Heating End Use														
101	Efficient Electric Water Heaters- 0.93 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	WPP	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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
104	Solar Water Heaters	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	PPL (email)	WPP	WPP	
105	Heat Pump Water Heaters- 2.0 Energy Factor	SFD	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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 ft/home
108	Low Flow Showerheads- 1.5 GPM	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
114	Solar Water Heaters	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	PPL (email)	WPP	WPP	
115	Heat Pump Water Heaters- 2.0 Energy Factor	SFA	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	WPP	PA Baseline	
117	Electric Water Heater Pipe Insulation	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS research	WPP	PA Baseline	
124	Solar Water Heaters	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	PPL (email)	WPP	WPP	
125	Heat Pump Water Heaters- 2.0 Energy Factor	MF	ROB	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	GDS estimate	WPP	PA Baseline	
127	Electric Water Heater Pipe Insulation	MF	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec 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	Lighting														
201	Ceiling Fan with ENERGY STAR Light Fixture	SFD	ROB	-	-	EnergyStar Calculator	Energy Star calculator / GDS calculation	CT Lighting CF Report	PA TRM	Energy Star calculator / GDS calculation	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	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	

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	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	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Low'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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	Low'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	GDS Estimate	PA TRM	GDS Estimate	PA TRM	Low'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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16">http://www.bing.com/shopping/pr180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;lpf=0&amp;pq=Residential%2bOccupancy%2bSensors&amp;FORM=CPCA&amp;ppc=16</a>
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	Low'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	Low'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	<a href="http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
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	<a href="http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16">http://www.bing.com/shopping/pf180-1lw-decora-passive-infrared-wall-switch-occupancy-sensor/where-to-buy/A76D28E5A37AB8535011?q=Residential+Occupancy+Sensors&amp;pf=0&amp;lqj=Residential%2bOccupancy%2bSensors&amp;FORM=CPC&amp;ppc=16</a>
300	Appliances														
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)	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	PECO (email from Nicholas DeDominicis)	WPP	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	WPP	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	WPP	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	WPP	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	WPP	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	WPP	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	WPP, PA Analysis	PA Baseline	
309	Energy Star upright with automatic defrost	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Low's	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	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	ENERGY STAR Clothes Washers- with Electric Heat	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	MID-ATL TRM	WPP	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	WPP	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	WPP	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	WPP	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	-	-	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	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qj=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;svp=&amp;sl=&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#(t)">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qj=n&amp;pq=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;svp=&amp;sl=&amp;sc=&amp;st=&amp;ast=AAAAAAAAA#(t)</a>
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	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
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	WPP	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	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	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
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	WPP	PA Baseline	Base sat. of this type of refrigerator; EE sat. of all primary refrigerators

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
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	Energy Star Electric Clothes Dryer with Moisture Sensor	SFA	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Home Depot	WPP	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	WPP	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=F&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=F&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0</a>
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 DeDomicinis)	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 DeDomicinis)	WPP	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	WPP	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	WPP	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	WPP	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	WPP	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	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	PA TRM	OHIO TRM	EnergyStar Calculator	WPP	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	WPP	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	WPP	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	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	*Sec CF Note 1	Vermont TRM	*Sec 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	*Sec CF Note 1	PA TRM	*Sec CF Note 1	PA TRM	Bing.com	WPP	Codes and Standards Enhancement Initiative	<a href="http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=F&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0">http://www.bing.com/shopping/search?q=whole+house+fan&amp;form=QBRE&amp;q=whole+house+fan&amp;aid=&amp;ct=&amp;qs=n&amp;qp=whole+house+fan&amp;sp=&amp;rt=Completions&amp;tk=&amp;spv=&amp;sl=F&amp;sc=&amp;st=&amp;ast=AAAAAAAA#x0y0</a>
400	Electronics														
401	ENERGY STAR Computer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PPL PY2 Report-Cited EnergyStar	WPP	EnergyStar 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	WPP, 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	WPP, 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	WPP, First Energy	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	WPP, GDS Estimate	EnergyStar Market Penetration Summary	
406	ENERGY STAR Printer	SFD	ROB	-	-	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	PA TRM	Best Buy	WPP, 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	WPP	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	

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	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	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	WPP	WPP	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	WPP	WPP	Base sat. assumes that half of homes with a pool/spa pump have a pool; PA TRM algorithm for savings used - kW <sub>g</sub> and kW <sub>sp</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	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 <sub>g</sub> and kW <sub>sp</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	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 <sub>g</sub> and kW <sub>sp</sub> parameters taken from Ohio TRM
600	HVAC (Envelope)														
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, 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	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	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	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	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	Measure Life Report	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	Measure Life Report	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	MID-ATL TRM	WPP	PA Baseline	\$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	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)

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	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	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)
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	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	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)
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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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	Navigator 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 (kW)	% 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	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	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)
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 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	
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 ft (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	\$1.82/sq ft (from Navigant) multiplied by square footage estimate (from West Penn Power)
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)														
701	Programmable Thermostat (ASHP)	SFD	Retrofit	RemRate	-	REMRate	REMRate/TRM	*See CF Note 1	REMRate/TRM	*See CF Note 1	PA TRM	Home Depot	WPP	WPP	
702	Air Source Heat Pump (Maintenance)	SFD	Retrofit	RemRate	-	RemRate	RemRate	PA TRM	RemRate	PA TRM	PA TRM	Home Depot	WPP	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	WPP	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	WPP	PA Baseline	
705	GSHHP w/ Desuperheater	SFD	ROB	RemRate	-	REMRate	REMRate	PA TRM	REMRate	PA TRM	PA TRM	PPL (email)	WPP	PA Baseline	<a href="http://www.gsothermal-heat-pump-resource.org/">http://www.gsothermal-heat-pump-resource.org/</a> (incremental cost of \$3000 per ton) plus \$250 premium for desuperheater
706	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	WPP	PA Baseline	cost source: <a href="http://www.stacceng.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf">http://www.stacceng.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20%20FINAL%20.pdf</a>

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	-	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	*Sec CF Note 1	PA TRM	*Sec 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/TRM	PA TRM	PA TRM	Home Depot	WPP	WPP		
713	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	PA TRM	GDS estimate	First Energy	WPP	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	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
716	Programmable Thermostat (ASHP)	SFA	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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	<a href="http://www.geothermal-heat-pump-rsource.org/">http://www.geothermal-heat-pump-rsource.org/</a> (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: <a href="http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf">http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf</a>	
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	-	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	*Sec CF Note 1	PA TRM	*Sec 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/TRM	PA TRM	PA TRM	Home Depot	WPP	WPP		
728	Furnace Whistle	SFA	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	WPP	PA Baseline	
731	Programmable Thermostat (ASHP)	MF	Retrofit	RemRate	-	REMRate	REMRate/TRM	*Sec CF Note 1	REMRate/TRM	*Sec 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	<a href="http://www.geothermal-heat-pump-rsource.org/">http://www.geothermal-heat-pump-rsource.org/</a> (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: <a href="http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf">http://www.staccenergy.org/Closing%20Reports/Strategies%20to%20Increase%20Res%20HVAC%20Efficiency%20FINAL%20.pdf</a>	
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		
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	WPP	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 (kWh)	Winter CF	Per Unit Summer Demand Savings (kWh)	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	*Sec CF Note 1	PA TRM	*Sec 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/TRM	PA TRM	PA TRM	Home Depot	WPP	WPP	
743	Furnace Whistle	SFD	Retrofit	-	-	PA TRM	PA TRM	*Sec CF Note 1	PA TRM	*Sec 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	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	PA TRM	GDS estimate	First Energy	WPP	PA Baseline
800	Whole House														
801	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
802	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication with Opower	WPP	GDS estimate	
803	Direct (Real Time) Feedback	SFD	Retrofit	RemRate	-	Vermont TRM	Vermont TRM	GDS estimate	Vermont TRM	GDS estimate	PA TRM	Vermont TRM	WPP	GDS estimate	
804	Indirect Feedback (O-Power)	SFD	Retrofit	RemRate	-	Opower	Opower	GDS estimate	Opower	GDS estimate	PA TRM	Communication 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	New Construction														
901	Residential New Construction-Tier 1	SFD	NC	RemRate	-	RemRate	RemRate	GDS estimate	RemRate	GDS estimate	GDS estimate	EnergyStar Homes Report	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	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 estimate	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 estimate	GDS estimate	EnergyStar Homes Report	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	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	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  
 GDS: GDS Associates Calculation/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: SPWG and GDS's document of a set of measure life values for selected measures

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
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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  
 Sncenergy.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

Residential Load Shapes (listed by measure type)

Measure Type		Allocation of Annual Energy Savings by Season				
		Load Reduction Factor (kW/kWh)	Winter		Summer	
			Peak	OffPeak	Peak	OffPeak
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%	
I2 - Lighting - Residential 5%	0.001014	41%	55%	1%	3%	
I3 - Lighting - Residential 11%	0.001014	41%	55%	1%	3%	
I4 - Lighting - Residential CFL and LED 30/8	0.001014	41%	55%	1%	3%	
J - Television - Residential	0.000222	41%	17%	29%	13%	
J2 - Television - Residential 28%	0.000222	41%	17%	29%	13%	
J3 - 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%	
L2 - 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%	