



ComEd Summary Impact Evaluation Report

Energy Efficiency / Demand Response Plan:
Plan Year 9 (PY9)

Presented to
Commonwealth Edison Company

DRAFT

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1. INTRODUCTION

This report presents the results of the impact evaluation of ComEd's Plan Year 9 (PY9) slate of energy efficiency programs offered under the Energy Efficiency Portfolio Standard (EEPS) and the Illinois Power Agency (IPA) umbrella. It presents a summary of the energy and demand impacts for the portfolio and each program and some detail on measure-specific savings. PY9 covers June 1, 2016 through December 31, 2017.

In PY9, ComEd's portfolio included programs implemented under the EEPS and IPA umbrella, pilot programs, and public sector and income eligible programs that ComEd took over from the DCEO portfolio on June 1, 2017. ComEd implemented 57 programs, including 25 EEPS, 22 IPA, and 12 DCEO bridge period programs, as listed in Table 1-1. This involved 23 programs in the residential sector (including Income Eligible programs) and 34 programs in the business sector (including public sector programs).

This summary report contains savings from 54 PY9 programs that final impact evaluation reports have been submitted to ComEd.¹ Process evaluation findings and results of net-to-gross research are presented in separate reports.

The AirCare Plus Program and Lighting Discounts Program had savings counting toward both EEPS and IPA targets. Those programs appear twice in the program level results shown below. The Lighting Discounts Program and Instant Discounts Program both had carryover savings from measures sold or incented in PY7 and PY8 that were installed in PY9. The PY9 Instant Discounts program carryover savings were attributed to the EEPS portfolio. The PY9 Lighting Discounts program carryover savings from PY7 were attributed to the EEPS portfolio, and the carryover savings from PY8 were attributed to the IPA portfolio.

¹ Three PY9 programs had no savings. These programs are: Root3 Energy Data Model, Low-Income Multi-family (UIC-ERC), and Total Connected Savings Wi-Fi Thermostat Optimization. These programs are shown in Table 1-1 but are excluded from subsequent tables containing program evaluation results.

Table 1-1. ComEd PY9 Energy Efficiency Programs

Sector	Program	Program
Business	EEPS	IPA
Business	C&I New Construction	Agriculture Energy Efficiency
Business	AirCare Plus*	AirCare Plus
Business	Custom	CLEARresult LLLC
Business	Data Center Efficiency	CLEARresult Schools DI
Business	Industrial Systems Optimization	Elevate Energy Assisted & Senior Housing
Business	Instant Discounts	Energy Advisor MBCx
Business	Operational Savings	LED Street Lighting
Business	Retrocommissioning (RCx)	Matrix DCV
Business	Standard	Matrix K-12 Private Schools DI
Business	Strategic Energy Management (SEM)	New Construction Small Buildings
Business		Rural Small Business EE Kits
Business		SEDAC Enhanced Building Optimization
Business		Small Business
Business		Small Commercial Lit Signage
Pilot Business	EEPS	IPA
Pilot Business	Business Energy Analyzer	
Pilot Business	Multi-family Common Area Pilot	
Pilot Business	Root3 Energy Data Model**	
Residential	EEPS	IPA
Residential	Appliance Rebates	CLEARresult Community-based CFL Distribution
Residential	Elementary Education Kits	Elevate Energy MF All Electric
Residential	Fridge Freezer Recycling	Home Energy Reports
Residential	Lighting Discounts*	Lighting Discounts
Residential	Heating, Cooling & Weatherization Rebates (HVAC)	Low-income Kits (UIC ERC)
Residential	Heating, Cooling & Weatherization Rebates (Wx)	NTC Gas & Electric Water Heater Kits
Residential	Home Energy Assessments	Shelton Solutions Great Energy Stewards
Residential	Multi-Family Comprehensive EE	Low-Income Multi-family (UIC-ERC)**
Residential	Residential New Construction	
Residential	Total Connected Savings Wi-Fi Thermostat Optimization**	
Pilot Residential	EEPS	IPA
Pilot Residential	Bigdely	
Pilot Residential	Nest Seasonal Savings	
Public Sector (DCEO Bridge)	EEPS	IPA
Public Sector	C&I New Construction	
Public Sector	Custom	
Public Sector	Free Lights	
Public Sector	LED Street Lighting	
Public Sector	PHA Efficient Living	
Public Sector	Retrocommissioning	
Public Sector	Savings Through Efficient Products (STEP)	
Public Sector	Standard	
Income Eligible (DCEO Bridge)	EEPS	IPA
Income Eligible	Affordable Housing New Construction	
Income Eligible	Illinois Home Weatherization Assistance Program (IHWAP)	
Income Eligible	Residential Retrofit: Energy Savers Multi-Family	
Income Eligible	Residential Retrofit: Single Family Retrofits (CBA)	
Carryover Savings	EEPS	IPA
Carryover	Instant Discounts	
Carryover	Lighting Discounts	Lighting Discounts

Source: ComEd tracking data and Navigant evaluation reports.

2. PORTFOLIO SAVINGS

Table 2-1 summarizes the incremental energy and demand savings the ComEd portfolio achieved in PY9.

Table 2-1. Total Annual Savings

Savings Category	Energy Savings (kWh)	Demand Savings (kW)	Peak Demand Savings (kW)
Ex Ante Gross Savings	2,361,472,511	101,465	178,214
Portfolio Gross Realization Rate	0.97	12.08	1.74
Verified Gross Savings	2,283,796,228	1,225,238	304,262
Portfolio Net-to-Gross (NTGR)	0.72	0.68	0.73
Verified Net Savings	2,368,289,705	838,610	228,660

Note: Some programs do not report ex ante gross savings (e.g., the Home Energy Reports program) and thus the evaluation does not calculate verified gross. The ex ante gross savings shown here is as reported by the programs and Verified Gross is only for those reporting ex ante gross. For the purposes of calculating a portfolio NTGR, Navigant used only those programs reporting ex ante gross and verified gross savings. Based on the same issue, the ratio of the net and verified gross savings shown in the table will not present an accurate ratio for the portfolio. Source: ComEd tracking data and Navigant team analysis.

Table 2-2 summarizes savings from the EEPS, IPA and DCEO bridge period portfolios. In PY9, ComEd's energy efficiency portfolio achieved 2,368,290 verified net MWh savings, with the EEPS portion achieving 1,087,076 verified net MWh, the IPA portion achieving 1,245,732 verified net MWh, and the DCEO bridge programs achieving 35,482 verified net MWh. This included 2,310,412 net MWh from funded measures in PY9 and 57,878 net MWh savings from previously funded lighting measures, or carryover, funded in PY7 or PY8 through the Lighting Discounts Program and Instant Discounts Program and expected to be installed in PY9. Of the 57,878 MWh in total PY9 carryover savings, 37,103 net MWh was attributable to EEPS and 20,775 net MWh was attributable to IPA.

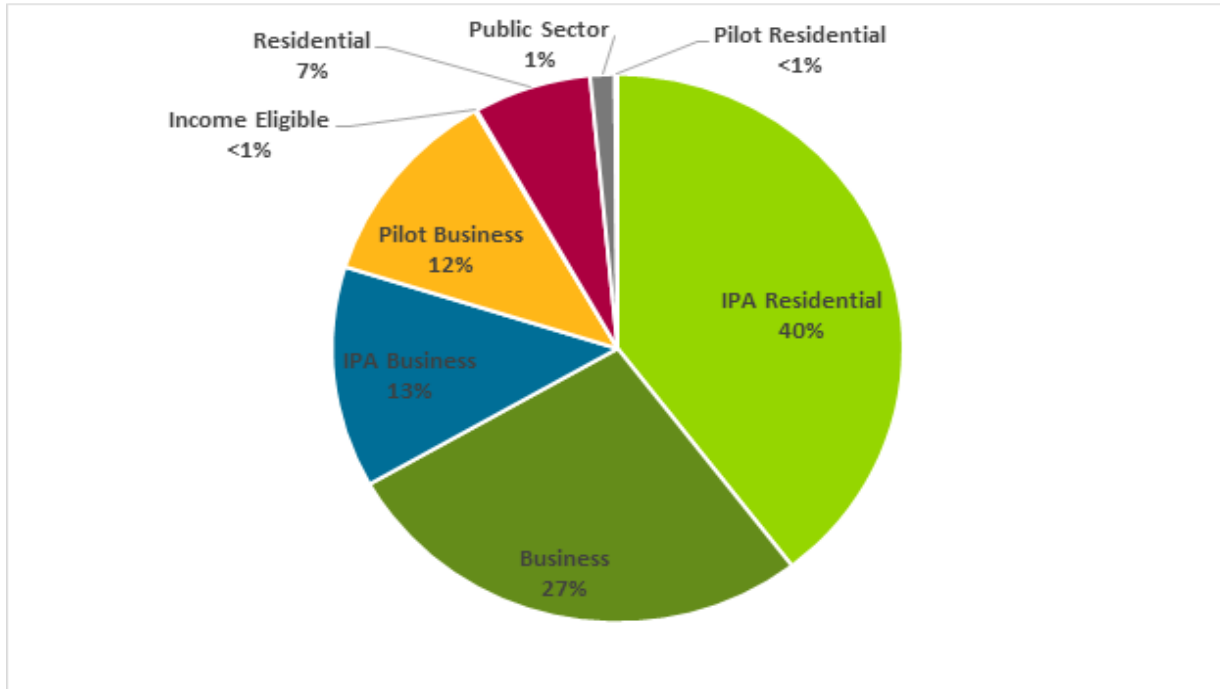
Table 2-2. Total Annual Savings by Portfolio

Savings Type	Portfolio	Ex Ante Gross Savings	Verified Gross Realization Rate	Verified Gross Savings	NTGR	Verified Net Savings
Energy (kWh)	EEPS	1,163,540,064	0.94	1,092,312,350	0.74	1,087,076,033
Energy (kWh)	IPA	1,152,730,877	1.00	1,149,259,326	0.70	1,245,731,533
Energy (kWh)	DCEO Bridge	45,201,570	0.93	42,224,552	0.84	35,482,139
Energy (kWh)	Total	2,361,472,511	0.97	2,283,796,228	0.72	2,368,289,705
Demand (kW)	EEPS	98,199	3.42	336,069	0.78	261,824
Demand (kW)	IPA	233	3770.33	878,488	0.65	567,194
Demand (kW)	DCEO Bridge	3,033	3.52	10,681	0.90	9,592
Demand (kW)	Total	101,465	12.08	1,225,238	0.68	838,610
Peak Demand (kW)	EEPS	129,531	1.22	158,298	0.75	124,485
Peak Demand (kW)	IPA	46,926	2.98	139,999	0.71	98,915
Peak Demand (kW)	DCEO Bridge	1,757	3.39	5,965	0.88	5,260
Peak Demand (kW)	Total	178,214	1.71	304,262	0.73	228,660

Source: ComEd tracking data and Navigant team analysis.

Overall, the IPA programs realized 53% of the portfolio savings and the EEPS programs had 46% while one percent came from DCEO bridge period programs. The IPA Residential programs contributed 40% of the total savings, followed by EEPS Business programs at 27% (see Figure 2-1). Further detail on the savings by program category are shown in subsequent sections.

Figure 2-1. Energy Savings by Program Category



Source: ComEd tracking data and Navigant team analysis.

3. SAVINGS BY PROGRAM

The savings by program are shown in the following tables and figures. Note that the AirCare Plus Program had savings counted toward both EEPS and IPA targets, and therefore appears twice in the tables. The Lighting Discounts Program had carryover savings counted toward both EEPS and IPA targets, while the Instant Discounts Program had carryover savings counted toward EEPS target.

Table 3-1. Energy Savings by Program

Portfolio	Sector	Program	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTGR	Verified Net Savings (kWh)
EEPS	Business	AirCare Plus	14,172,212	1.00	14,149,164	0.90	12,734,248
EEPS	Business	C&I New Construction	81,347,380	0.79	64,299,560	0.77	49,510,661
EEPS	Business	Custom	48,447,199	0.86	41,746,338	0.58	24,212,876
EEPS	Business	Data Center Efficiency	46,300,381	1.02	47,111,833	0.64	30,151,573
EEPS	Business	Industrial Systems Optimization	38,665,705	0.84	32,523,735	0.80	26,018,988
EEPS	Business	Instant Discounts	240,343,911	0.92	220,478,561	0.78	171,804,653
EEPS	Business	Operational Savings	4,363,213	0.95	4,128,394	0.95	3,921,974

Portfolio	Sector	Program	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTGR	Verified Net Savings (kWh)
EEPS	Business	Retrocommissioning (RCx)	33,876,288	1.04	35,156,156	0.95	33,398,349
EEPS	Business	Standard	400,168,648	0.95	380,839,229	0.70	265,810,377
EEPS	Business	Strategic Energy Management (SEM)	13,088,906	1.22	15,977,950	1.00	15,977,950
EEPS	Business	Subtotal	920,773,843	0.93	856,410,920	0.74	633,541,649
EEPS	Pilot Business	Business Energy Analyzer*					276,461,855
EEPS	Pilot Business	Multi-family Common Area Pilot	4,556,087	1.01	4,621,834	0.95	4,390,742
EEPS	Pilot Business	Subtotal	4,556,087	1.01	4,621,834	0.95	280,852,597
EEPS	Residential	Appliance Rebates	44,575,051	0.99	44,175,293	0.92	40,742,799
EEPS	Residential	Elementary Education Kits	6,079,289	0.72	4,376,583	1.00	4,376,583
EEPS	Residential	Fridge Freezer Recycling	63,751,662	1.04	66,334,294	0.52	34,335,568
EEPS	Residential	Heating, Cooling & Weatherization Rebates (HVAC)	19,822,877	0.99	19,606,813	0.99	19,420,792
EEPS	Residential	Heating, Cooling & Weatherization Rebates (Wx)	1,216,722	1.16	1,410,456	1.01	1,424,560
EEPS	Residential	Home Energy Assessments	30,797,725	1.00	30,688,042	0.82	25,223,277
EEPS	Residential	Multi-Family Comprehensive EE	5,665,053	1.00	5,665,327	0.97	5,491,494
EEPS	Residential	Residential New Construction	1,415,604	1.02	1,450,191	0.65	942,624
EEPS	Residential	Subtotal	173,323,983	1.00	173,706,999	0.76	131,957,697
EEPS	Pilot Residential	Bidgely					99,586
EEPS	Pilot Residential	Nest Seasonal Savings*					3,521,806
EEPS	Pilot Residential	Subtotal	-	-	-	-	3,621,392
EEPS	EEPS Carryover	Instant Discounts (carryover)	15,997,751	1.00	15,997,751	0.69	11,007,378
EEPS	EEPS Carryover	Lighting Discounts (carryover)	48,888,400	0.85	41,574,846	0.63	26,095,320
EEPS	EEPS Carryover	Subtotal	64,886,151	0.89	57,572,597	0.64	37,102,698
EEPS	Portfolio Total		1,163,540,064	0.94	1,092,312,350	1.73	1,087,076,033
IPA	IPA Business	Agriculture Energy Efficiency	709,289	0.99	700,073	0.90	630,066
IPA	IPA Business	AirCare Plus	11,812,859	0.99	11,705,775	0.90	10,535,198
IPA	IPA Business	CLEAResult LLLC	9,041,310	0.99	8,993,491	0.90	8,094,142
IPA	IPA Business	CLEAResult Schools DI	1,105,022	1.22	1,352,207	0.95	1,284,596
IPA	IPA Business	Elevate Energy Assisted & Senior Housing	1,200,829	1.07	1,285,910	0.95	1,221,614

Portfolio	Sector	Program	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTGR	Verified Net Savings (kWh)
IPA	IPA Business	Energy Advisor MBCx	1,684,291	1.20	2,020,622	1.00	2,020,622
IPA	IPA Business	LED Street Lighting	4,497,391	1.00	4,497,199	1.00	4,497,199
IPA	IPA Business	Matrix DCV	828,282	1.00	828,282	0.89	737,171
IPA	IPA Business	Matrix K-12 Private Schools DI	799,293	1.00	801,221	0.95	761,160
IPA	IPA Business	New Construction Small Buildings	1,339,540	0.83	1,112,042	0.77	856,272
IPA	IPA Business	Rural Small Business EE Kits	2,199,145	1.64	3,612,400	0.90	3,251,160
IPA	IPA Business	SEDAC Enhanced Building Optimization	2,254,315	0.99	2,230,330	0.95	2,118,813
IPA	IPA Business	Small Business	281,515,647	1.00	281,829,211	0.91	256,464,582
IPA	IPA Business	Small Commercial Lit Signage	18,107,063	1.01	18,328,806	0.90	16,495,926
IPA	IPA Business	Subtotal	337,094,276	1.01	339,297,569	0.91	308,968,521
IPA	IPA Residential	CLEAResult Community-based CFL Distribution	21,404,196	1.00	21,383,364	1.00	21,383,364
IPA	IPA Residential	Elevate Energy MF All Electric	1,868,792	0.70	1,305,036	0.86	1,126,851
IPA	IPA Residential	Home Energy Reports*					442,029,131
IPA	IPA Residential	Lighting Discounts	749,049,139	0.99	745,030,467	0.59	443,104,671
IPA	IPA Residential	Low-income Kits (UIC ERC)	6,417,322	0.87	5,581,491	1.00	5,581,491
IPA	IPA Residential	NTC Gas & Electric Water Heater Kits	2,499,952	0.89	2,232,283	1.00	2,232,283
IPA	IPA Residential	Shelton Solutions Great Energy Stewards*					530,000
IPA	IPA Residential	Subtotal	781,239,401	0.99	775,532,641	0.61	915,987,791
IPA	IPA Carryover	Lighting Discounts (carryover)	34,397,200	1.00	34,429,116	0.60	20,775,221
IPA	IPA Carryover	Subtotal	34,397,200	1.00	34,429,116	0.60	20,775,221
IPA		Portfolio Total	1,152,730,877	1.00	1,149,259,326	1.78	1,245,731,533
DCEO Bridge	Income Eligible	Affordable Housing New Construction	60,740	0.66	39,790	1.00	39,790
DCEO Bridge	Income Eligible	Illinois Home Weatherization Assistance Program (IHWAP)	711,715	1.13	801,872	1.00	801,872
DCEO Bridge	Income Eligible	Residential Retrofit: Energy Savers Multi-Family	1,246,641	0.81	1,005,938	1.00	1,005,938
DCEO Bridge	Income Eligible	Residential Retrofit: Single Family Retrofits (CBA)	642,515	0.96	613,604	1.00	613,604
DCEO Bridge	Income Eligible	Subtotal	2,661,611	0.92	2,461,204	1.00	2,461,204

Portfolio	Sector	Program	Ex Ante Gross Savings (kWh)	Verified Gross Realization Rate	Verified Gross Savings (kWh)	NTGR	Verified Net Savings (kWh)
DCEO Bridge	Public Sector	C&I New Construction	3,010,000	0.81	2,451,000	0.77	1,887,270
DCEO Bridge	Public Sector	Custom	466,676	0.96	447,093	0.83	371,087
DCEO Bridge	Public Sector	Free Lights	4,650,295	1.03	4,787,697	0.96	4,596,190
DCEO Bridge	Public Sector	LED Street Lighting	12,954,935	1.00	12,954,935	1.00	12,954,935
DCEO Bridge	Public Sector	PHA Efficient Living	454,887	0.96	435,059	1.00	435,059
DCEO Bridge	Public Sector	Retrocommissioning	245,937	0.82	200,539	0.95	190,512
DCEO Bridge	Public Sector	Savings Through Efficient Products (STEP)	1,856,407	0.99	1,836,504	0.96	1,763,043
DCEO Bridge	Public Sector	Standard	18,900,822	0.88	16,650,521	0.65	10,822,839
DCEO Bridge	Public Sector	Subtotal	42,539,959	0.93	39,763,348	0.83	33,020,935
DCEO Bridge		Portfolio Total	45,201,570	0.93	42,224,552	1.68	35,482,139
	All	Grand Total	2,361,472,511	0.97	2,283,796,228	0.72	2,368,289,705

Note: the realization rate is calculated at the program level as Verified Net/Verified Gross. The program-level analysis typically used measure-level deemed NTG values, which are listed here: ComEd_NTG_History_and_PY9_Recommendations_2016-02-26_Final.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

* Four programs did not report ex ante gross savings, and thus the evaluation did not calculate verified gross savings but only verified net savings.

Source: ComEd tracking data and Navigant team analysis.

Table 3-2 and Table 3-3 show total demand and summer peak demand savings by program. Very few programs reported total demand savings.

Table 3-2. Demand Savings by Program

Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NT GR	Verified Net Savings (kW)
EEPS	Business	AirCare Plus			9,048	0.90	8,143
EEPS	Business	C&I New Construction	18,754	0.68	12,810	0.77	9,863
EEPS	Business	Custom					
EEPS	Business	Data Center Efficiency					
EEPS	Business	Industrial Systems Optimization					
EEPS	Business	Instant Discounts	62,906	0.90	56,594	0.78	44,101
EEPS	Business	Operational Savings					
EEPS	Business	Retrocommissioning (RCx)	1,683	1.38	2,318	0.95	2,202
EEPS	Business	Standard			84,539	0.70	58,951
EEPS	Business	Strategic Energy Management (SEM)					
EEPS	Business	Subtotal	83,343	1.98	165,309	0.75	123,260
EEPS	Pilot Business	Business Energy Analyzer					
EEPS	Pilot Business	Multi-family Common Area Pilot			823	0.95	782

Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NT GR	Verified Net Savings (kW)
EEPS	Pilot Business	Subtotal	-	-	823	0.95	782
EEPS	Residential	Appliance Rebates			42,254	0.92	38,896
EEPS	Residential	Elementary Education Kits			13,147	1.00	13,147
EEPS	Residential	Fridge Freezer Recycling	10,343	1.03	10,637	0.51	5,452
EEPS	Residential	Heating, Cooling & Weatherization Rebates (HVAC)			16,545	0.99	16,391
EEPS	Residential	Heating, Cooling & Weatherization Rebates (Wx)			1,229	1.01	1,241
EEPS	Residential	Home Energy Assessments			31,337	0.81	25,316
EEPS	Residential	Multi-Family Comprehensive EE			7,718	0.97	7,503
EEPS	Residential	Residential New Construction			137	0.65	89
EEPS	Residential	Subtotal	10,343	11.89	123,004	0.88	108,035
EEPS	Pilot Residential	Bidgely					
EEPS	Pilot Residential	Nest Seasonal Savings					
EEPS	Pilot Residential	Subtotal	-	-	-	-	-
EEPS	EEPS Carryover	Instant Discounts (carryover)	4,513	1.00	4,513	0.69	3,096
EEPS	EEPS Carryover	Lighting Discounts (carryover)			42,420	0.63	26,651
EEPS	EEPS Carryover	Subtotal	4,513	10.40	46,933	0.63	29,747
EEPS		Portfolio Total	98,199	3.42	336,069	1.56	261,824
IPA	IPA Business	Agriculture Energy Efficiency			134	0.90	121
IPA	IPA Business	AirCare Plus			10,970	0.90	9,873
IPA	IPA Business	CLEAResult LLLC			2,787	0.90	2,508
IPA	IPA Business	CLEAResult Schools DI			607	0.95	576
IPA	IPA Business	Elevate Energy Assisted & Senior Housing			250	0.95	237
IPA	IPA Business	Energy Advisor MBCx					
IPA	IPA Business	LED Street Lighting			1,045	1.00	1,045
IPA	IPA Business	Matrix DCV			78	0.88	69
IPA	IPA Business	Matrix K-12 Private Schools DI			302	0.95	287
IPA	IPA Business	New Construction Small Buildings	233	0.76	177	0.77	136
IPA	IPA Business	Rural Small Business EE Kits			11,208	0.90	10,087
IPA	IPA Business	SEDAC Enhanced Building Optimization			620	0.95	589
IPA	IPA Business	Small Business			62,804	0.91	57,152
IPA	IPA Business	Small Commercial Lit Signage			3,738	0.90	3,364
IPA	IPA Business	Subtotal	233	406.52	94,720	0.91	86,044

Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NT GR	Verified Net Savings (kW)
IPA	IPA Residential	CLEAResult Community-based CFL Distribution			26,451	1.00	26,451
IPA	IPA Residential	Elevate Energy MF All Electric			176	0.86	151
IPA	IPA Residential	Home Energy Reports					
IPA	IPA Residential	Lighting Discounts			713,031	0.59	423,710
IPA	IPA Residential	Low-income Kits (UIC ERC)			4,861	1.00	4,861
IPA	IPA Residential	NTC Gas & Electric Water Heater Kits			5,781	1.00	5,781
IPA	IPA Residential	Shelton Solutions Great Energy Stewards					
IPA	IPA Residential	Subtotal	-	-	750,300	0.61	460,954
IPA	IPA Carryover	Lighting Discounts (carryover)			33,468	0.60	20,196
IPA	IPA Carryover	Subtotal	-	-	33,468	0.60	20,196
IPA		Portfolio Total	233	3,770.33	878,488	1.29	567,194
DCEO Bridge	Income Eligible	Affordable Housing New Construction			26	1.00	26
DCEO Bridge	Income Eligible	Illinois Home Weatherization Assistance Program (IHWAP)			839	1.00	839
DCEO Bridge	Income Eligible	Residential Retrofit: Energy Savers Multi-Family			539	1.00	539
DCEO Bridge	Income Eligible	Residential Retrofit: Single Family Retrofits (CBA)			488	1.00	488
DCEO Bridge	Income Eligible	Subtotal	-	-	1,892	1.00	1,892
DCEO Bridge	Public Sector	C&I New Construction					
DCEO Bridge	Public Sector	Custom					
DCEO Bridge	Public Sector	Free Lights			1,558	0.96	1,496
DCEO Bridge	Public Sector	LED Street Lighting	3,011	1.00	3,011	1.00	3,011
DCEO Bridge	Public Sector	PHA Efficient Living					
DCEO Bridge	Public Sector	Retrocommissioning	22	0.50	11	0.91	10
DCEO Bridge	Public Sector	Savings Through Efficient Products (STEP)			1,442	0.96	1,384
DCEO Bridge	Public Sector	Standard			2,767	0.65	1,799
DCEO Bridge	Public Sector	Subtotal	3,033	2.90	8,789	0.88	7,700
DCEO Bridge		Portfolio Total	3,033	3.52	10,681	1.80	9,592
All		Grand Total	101,465	12.08	1,225,238	0.68	838,610

Note: the realization rate is calculated at the program level as Verified Net/Verified Gross. The program-level analysis typically used measure-level deemed NTG values, which are listed here: ComEd_NTG_History_and_PY9_Recommendations_2016-02-26_Final.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

Source: ComEd tracking data and Navigant team analysis.

Table 3-3. Summer Peak Demand Savings by Program

Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NTG R	Verified Net Savings (kW)
EEPS	Business	AirCare Plus			1,896	0.90	1,706
EEPS	Business	C&I New Construction	18,754	0.59	11,141	0.77	8,578
EEPS	Business	Custom	3,521	1.60	5,620	0.58	3,260
EEPS	Business	Data Center Efficiency	5,123	0.87	4,471	0.64	2,861
EEPS	Business	Industrial Systems Optimization	4,954	0.85	4,211	0.80	3,368
EEPS	Business	Instant Discounts			43,720	0.78	34,067
EEPS	Business	Operational Savings					
EEPS	Business	Retrocommissioning (RCx)	1,683	1.38	2,318	0.95	2,202
EEPS	Business	Standard	55,676	0.79	44,005	0.70	30,737
EEPS	Business	Strategic Energy Management (SEM)					
EEPS	Business	Subtotal	89,711	1.31	117,382	0.74	86,779
EEPS	Pilot Business	Business Energy Analyzer					
EEPS	Pilot Business	Multi-family Common Area Pilot	497	1.04	517	0.95	491
EEPS	Pilot Business	Subtotal	497	1.04	517	0.95	491
EEPS	Residential	Appliance Rebates	14,239	0.71	10,103	0.96	9,673
EEPS	Residential	Elementary Education Kits	702	0.63	443	1.00	443
EEPS	Residential	Fridge Freezer Recycling	8,681	1.04	8,998	0.52	4,639
EEPS	Residential	Heating, Cooling & Weatherization Rebates (HVAC)	7,507	1.02	7,639	0.99	7,565
EEPS	Residential	Heating, Cooling & Weatherization Rebates (Wx)	735	0.78	573	1.01	578
EEPS	Residential	Home Energy Assessments	4,284	0.84	3,581	0.83	2,983
EEPS	Residential	Multi-Family Comprehensive EE			551	0.98	538
EEPS	Residential	Residential New Construction			712	0.65	463
EEPS	Residential	Subtotal	36,148	0.90	32,600	0.82	26,882
EEPS	Pilot Residential	Bidgely					
EEPS	Pilot Residential	Nest Seasonal Savings					5,247
EEPS	Pilot Residential	Subtotal	-	-	-	-	5,247
EEPS	EEPS Carryover	Instant Discounts (carryover)	3,175	1.00	3,175	0.69	2,186
EEPS	EEPS Carryover	Lighting Discounts (carryover)			4,624	0.63	2,900
EEPS	EEPS Carryover	Subtotal	3,175	2.46	7,799	0.65	5,086
EEPS		Portfolio Total	129,531	1.22	158,298	1.54	124,485
IPA	IPA Business	Agriculture Energy Efficiency			108	0.90	97
IPA	IPA Business	AirCare Plus			2,113	0.90	1,902

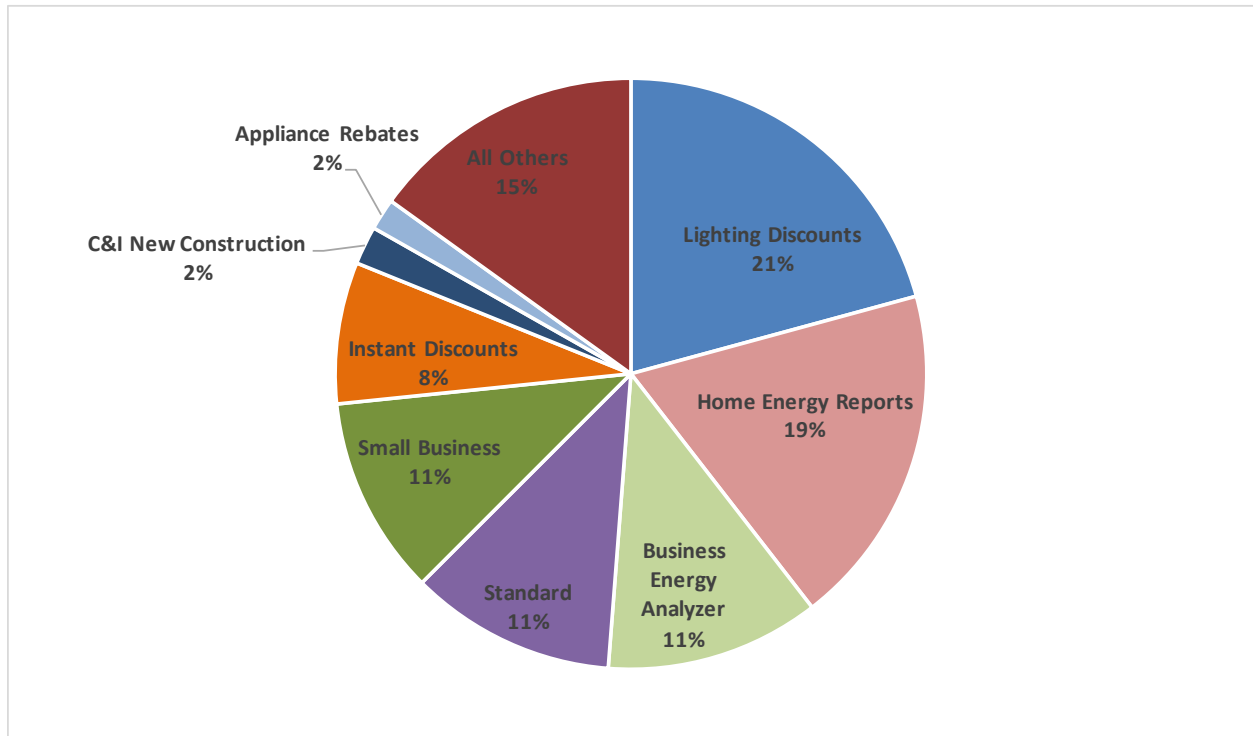
Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NTG R	Verified Net Savings (kW)
IPA	IPA Business	CLEAResult LLLC	1,751	1.01	1,761	0.90	1,585
IPA	IPA Business	CLEAResult Schools DI	268	0.97	261	0.95	248
IPA	IPA Business	Elevate Energy Assisted & Senior Housing	130	1.03	134	0.95	127
IPA	IPA Business	Energy Advisor MBCx					
IPA	IPA Business	LED Street Lighting	-		711	1.00	711
IPA	IPA Business	Matrix DCV					
IPA	IPA Business	Matrix K-12 Private Schools DI	200	1.05	210	0.95	199
IPA	IPA Business	New Construction Small Buildings	247	0.51	126	0.77	97
IPA	IPA Business	Rural Small Business EE Kits	382	1.19	455	0.90	409
IPA	IPA Business	SEDAC Enhanced Building Optimization			310	0.95	295
IPA	IPA Business	Small Business	43,314	0.90	39,070	0.91	35,554
IPA	IPA Business	Small Commercial Lit Signage			-	-	-
IPA	IPA Business	Subtotal	46,292	0.98	45,259	0.91	41,224
IPA	IPA Residential	CLEAResult Community-based CFL Distribution			2,142	1.00	2,142
IPA	IPA Residential	Elevate Energy MF All Electric			141	0.86	121
IPA	IPA Residential	Home Energy Reports					
IPA	IPA Residential	Lighting Discounts			87,584	0.60	52,147
IPA	IPA Residential	Low-income Kits (UIC ERC)	634	0.92	581	1.00	581
IPA	IPA Residential	NTC Gas & Electric Water Heater Kits			278	1.00	278
IPA	IPA Residential	Shelton Solutions Great Energy Stewards					
IPA	IPA Residential	Subtotal	634	143.10	90,726	0.61	55,269
IPA	IPA Carryover	Lighting Discounts (carryover)			4,014	0.60	2,422
IPA	IPA Carryover	Subtotal	-	-	4,014	0.60	2,422
IPA		Portfolio Total	46,926	2.98	139,999	1.41	98,915
DCEO Bridge	Income Eligible	Affordable Housing New Construction	19	0.53	10	1.00	10
DCEO Bridge	Income Eligible	Illinois Home Weatherization Assistance Program (IHWAP)			187	1.00	187
DCEO Bridge	Income Eligible	Residential Retrofit: Energy Savers Multi-Family	128	1.26	161	1.00	161
DCEO Bridge	Income Eligible	Residential Retrofit: Single Family Retrofits (CBA)	320	0.41	131	1.00	131
DCEO Bridge	Income Eligible	Subtotal	467	1.05	489	1.00	489
DCEO Bridge	Public Sector	C&I New Construction					
DCEO Bridge	Public Sector	Custom	2	35.50	71	0.82	58

Portfolio	Sector	Program	Ex Ante Gross Savings (kW)	Verified Gross Realization Rate	Verified Gross Savings (kW)	NTG R	Verified Net Savings (kW)
DCEO Bridge	Public Sector	Free Lights			768	0.96	737
DCEO Bridge	Public Sector	LED Street Lighting	-		2,047	1.00	2,047
DCEO Bridge	Public Sector	PHA Efficient Living	115	0.67	77	1.00	77
DCEO Bridge	Public Sector	Retrocommissioning	22	0.50	11	0.91	10
DCEO Bridge	Public Sector	Savings Through Efficient Products (STEP)	691	1.01	695	0.96	667
DCEO Bridge	Public Sector	Standard	460	3.93	1,807	0.65	1,175
DCEO Bridge	Public Sector	Subtotal	1,290	4.24	5,476	0.87	4,771
DCEO Bridge		Portfolio Total	1,757	3.39	5,965	1.76	5,260
All		Grand Total	178,214	1.71	304,262	0.73	228,660

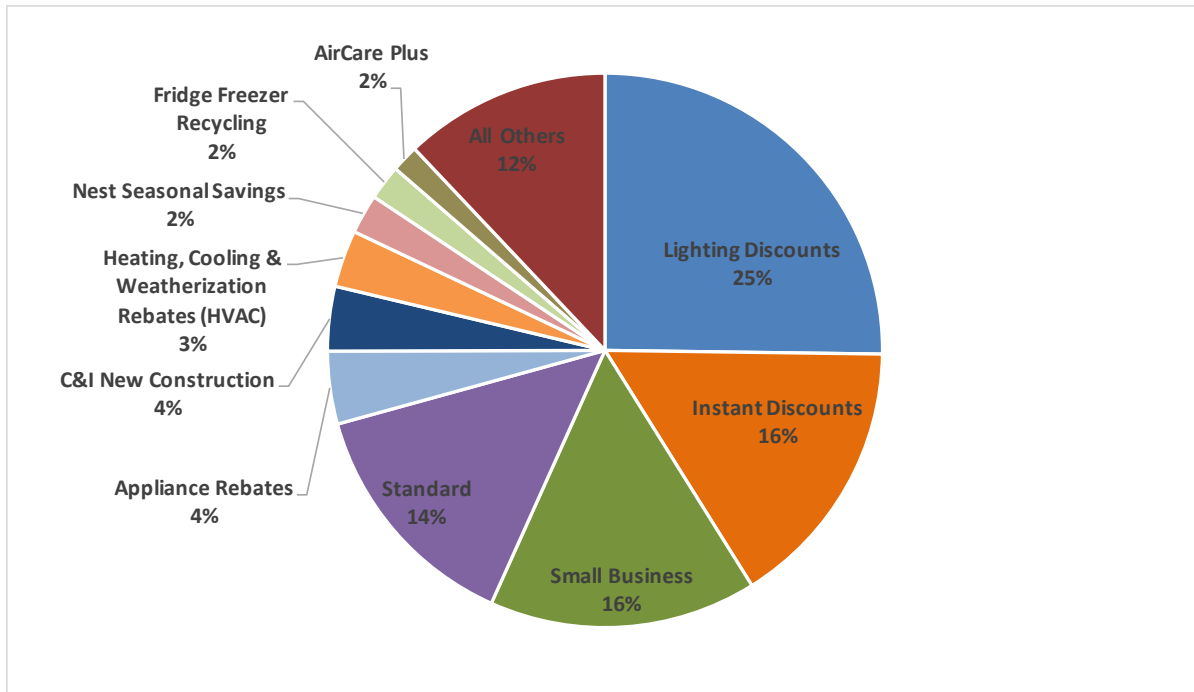
Note: the realization rate is calculated at the program level as Verified Net/Verified Gross. The program-level analysis typically used measure-level deemed NTG values, which are listed here: ComEd_NTG_History_and_PY9_Recommendations_2016-02-26_Final.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.
 Source: ComEd tracking data and Navigant team analysis.

The following figures show energy and summer peak demand savings for the programs with highest net savings impact.

Figure 3-1. Net Energy Savings by Program



Source: Evaluation Analysis

Figure 3-2. Net Peak Demand Savings by Program


Source: Evaluation Analysis

4. SAVINGS BY MEASURE

Lighting measures contributed the most energy and demand savings to the portfolio by a substantial margin as shown in the end-use type categories in Table 4-1, Table 4-2, and Figure 4-1. Lighting measures contributed the most 53% of the portfolio savings in PY9. Behavioral programs follow with 30% of net savings with majority of savings from Business Energy Analyzer and Home Energy Reports.

Table 4-1. Energy Savings by Measure Category

End Use Type	Ex Ante Gross Savings (kWh)	Verified Gross Savings (kWh)	Verified Net Savings (kWh)
Lighting	1,787,735,059	1,760,889,654	1,242,517,589
HVAC	159,712,663	141,923,041	123,809,268
Refrigeration	95,121,339	97,399,514	61,145,217
Compressed Air	35,796,516	30,360,917	24,174,281
Appliances	22,091,133	21,900,691	15,515,746
Consumer Electronics	13,182,117	11,767,900	10,728,403
Hot Water	6,844,767	6,188,252	5,865,916
Behavioral	1,684,291	2,020,622	721,141,194
Shell	2,015,740	1,933,661	1,947,157
Food Service	209,986	209,986	201,259
Other	237,078,900	209,201,990	161,243,675
Grand Total	2,361,472,511	2,283,796,228	2,368,289,705

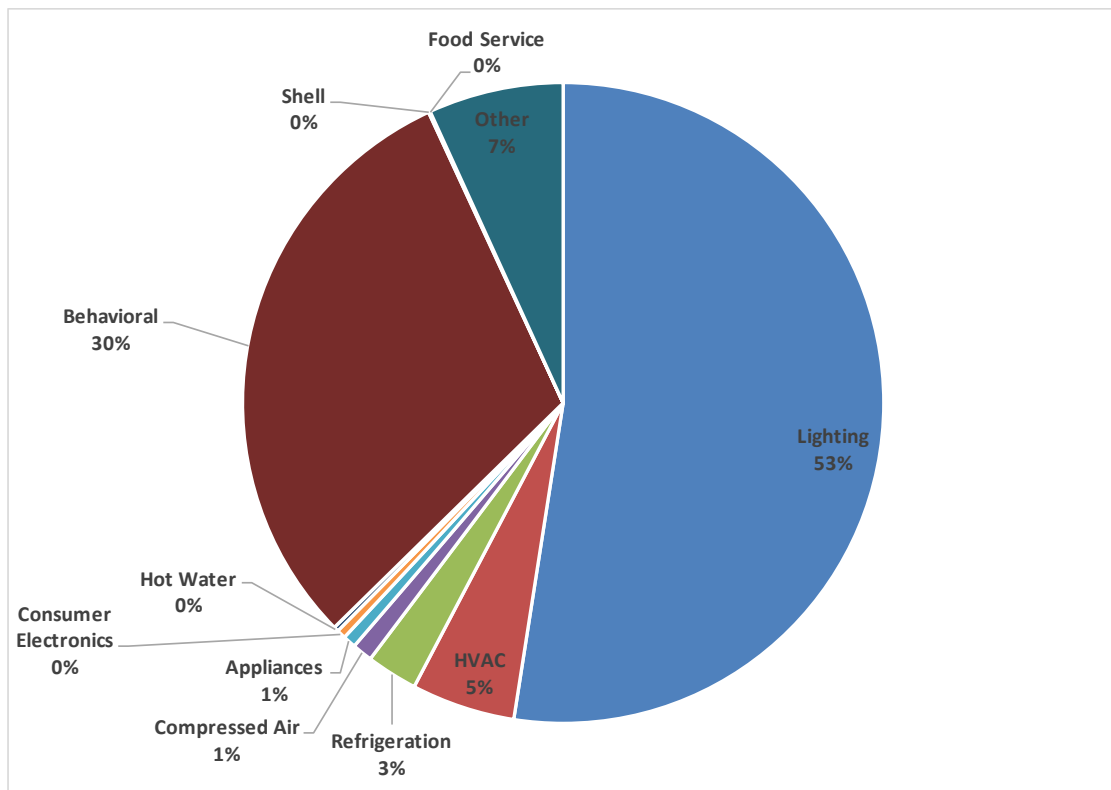
Source: ComEd tracking data and Navigant team analysis.

Table 4-2. Summer Peak Demand Savings by Measure Category

End Use Type	Ex Ante Gross Savings (kW)	Verified Gross Savings (kW)	Verified Net Savings (kW)
Lighting	87,807	135,625	107,692
HVAC	31,767	24,703	27,835
Refrigeration	11,748	10,639	6,259
Compressed Air	7,545	6,806	5,811
Appliances	3,531	3,558	2,346
Consumer Electronics	1,269	1,494	1,371
Hot Water	744	656	662
Behavioral	638	602	577
Shell	0	0	0
Food Service	0	0	0
Other	33,163	120,179	76,107
Grand Total	178,214	304,262	228,660

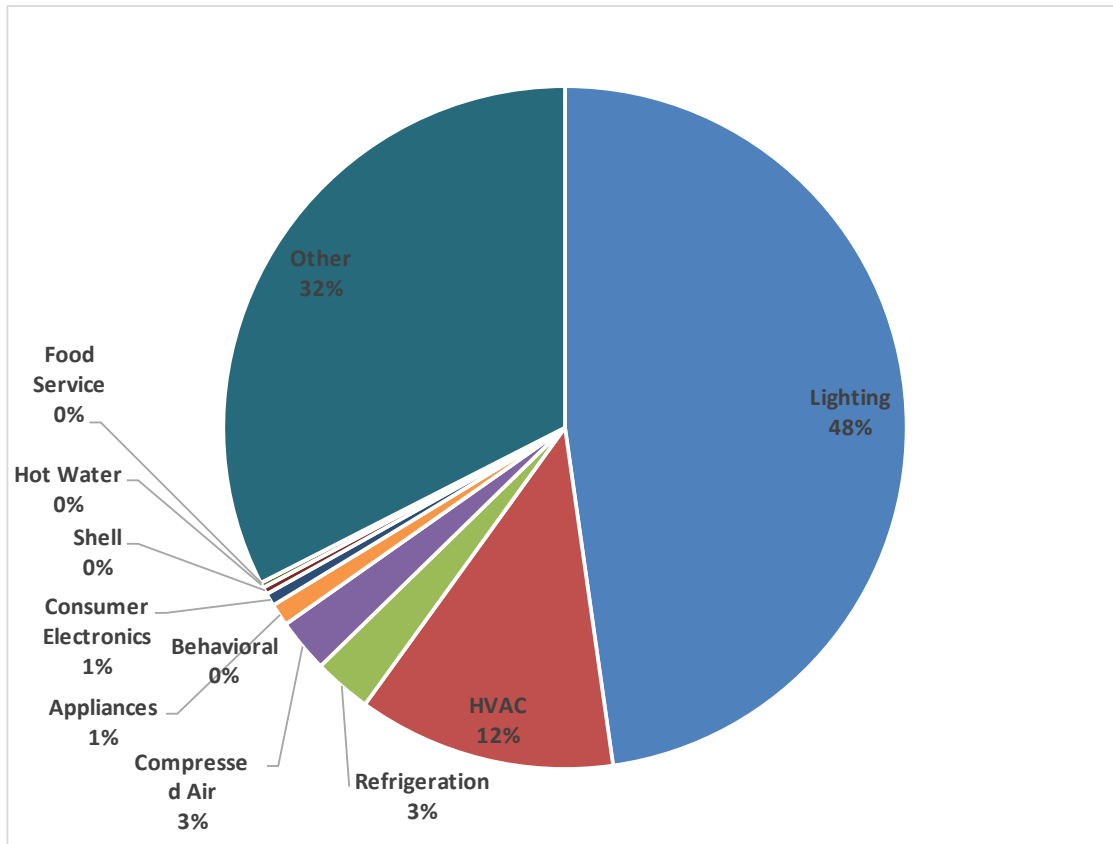
Source: ComEd tracking data and Navigant team analysis.

Figure 4-1. Net Energy Savings by End-use Type



Source: Evaluation Analysis

Figure 4-2. Net Peak Demand Savings by End-use Type



Source: Evaluation Analysis

5. LIFETIME SAVINGS BY PROGRAM

This table provides the weighted average measure life and estimated lifetime savings from the verified first year gross and net savings.

Table 5-1. Verified First Year and Lifetime Savings and Acquisition Costs

Portfolio	Sector	ComEd PY9 Program	Verified Gross Savings					Verified Net Savings					Participation		
			Verified Gross Realization Rate (%)	First Year Annual Energy Savings (kWh) - Gross	First Year Peak Demand Savings (kW) - Gross	Lifetime Savings (kWh) - Gross	NTG (%)	First Year Annual Energy Savings (kWh) - Net	First Year Peak Demand Savings (kW) - Net	Lifetime Savings (kWh) - Net	First Year Cost per First Year Net Annual Savings	First Year Cost per Net Lifetime Savings	Program Costs	# Units	Units Definition
EEPS	Business	AirCare Plus	100%	14,149,164	1,896	52,516,174	90%	12,734,248	1,706	47,264,558	\$0.1433	\$0.0386	\$1,824,775	3,623	Measures
EEPS	Business	C&I New Construction	79%	64,299,560	11,141	1,093,092,520	77%	49,510,661	8,578	841,681,237	\$0.2807	\$0.0165	\$13,897,869	99	Projects
EEPS	Business	Custom	86%	41,746,338	5,620	536,183,008	58%	24,212,876	3,260	310,986,144	\$0.2009	\$0.0156	\$4,864,340	123	Projects
EEPS	Business	Data Center Efficiency	102%	47,111,833	4,471	690,756,162	64%	30,151,573	2,861	442,083,942	\$0.1137	\$0.0078	\$3,427,001	19	Projects
EEPS	Business	Industrial Systems Optimization	84%	32,523,735	4,211	272,893,449	80%	26,018,988	3,368	218,314,759	\$0.2362	\$0.0281	\$6,144,704	231	Projects
EEPS	Business	Instant Discounts	92%	220,478,561	43,720	2,263,404,304	78%	171,804,653	34,067	1,763,724,279	\$0.0713	\$0.0069	\$12,256,983	2,053,383	Bulbs
EEPS	Business	Operational Savings	95%	4,128,394		47,592,783	95%	3,921,974		45,213,140	\$0.5013	\$0.0435	\$1,966,166	235	Measures
EEPS	Business	Retrocommissioning (RCx)	104%	35,156,156	2,318	191,392,851	95%	33,398,349	2,202	181,823,213	\$0.2468	\$0.0453	\$8,242,643	124	Projects
EEPS	Business	Standard	95%	380,839,229	44,005	4,509,841,217	70%	265,810,377	30,737	3,147,686,747	\$0.1949	\$0.0165	\$51,802,794	7,671	Measures
EEPS	Business	Strategic Energy Management (SEM)	122%	15,977,950		79,889,750	100%	15,977,950		79,889,750	\$0.0331	\$0.0066	\$529,026	21	Participants
EEPS	Business	Subtotal	93%	856,410,920	117,382	9,737,562,218	74%	633,541,649	86,779	7,078,667,770	\$0.1657	\$0.0148	\$104,956,303		
EEPS	Pilot Business	Business Energy Analyzer						276,461,855		276,461,855	\$0.0031	\$0.0031	\$847,323	2,666	Participants
EEPS	Pilot Business	Multi-family Common Area Pilot	101%	4,621,834	517	53,623,888	95%	4,390,742	491	50,942,690	\$0.5097	\$0.0439	\$2,237,844	35,183	Measures
EEPS	Pilot Business	Subtotal	101%	4,621,834	517	53,623,888	95%	280,852,597	491	327,404,545	\$0.0110	\$0.0094	\$3,085,166		
EEPS	Residential	Appliance Rebates	99%	44,175,293	10,103	436,856,797	92%	40,742,799	9,673	402,912,295	\$0.5202	\$0.0526	\$21,194,729	228,774	Appliances
EEPS	Residential	Elementary Education Kits	72%	4,376,583	443	39,712,356	100%	4,376,583	443	39,712,356	\$0.2218	\$0.0244	\$970,943	376,758	Kits
EEPS	Residential	Fridge Freezer Recycling	104%	66,334,294	8,998	528,008,090	52%	34,335,568	4,639	273,304,449	\$0.3927	\$0.0493	\$13,483,282	81,633	Appliances
EEPS	Residential	Heating, Cooling & Weatherization Rebates (HVAC)	99%	19,606,813	7,639	365,645,689	99%	19,420,792	7,565	362,176,600	\$0.6750	\$0.0362	\$13,109,913	32,825	Projects
EEPS	Residential	Heating, Cooling & Weatherization Rebates (Wx)	116%	1,410,456	573	25,934,655	101%	1,424,560	578	26,193,991	\$0.7031	\$0.0382	\$1,001,656	5,863	Projects
EEPS	Residential	Home Energy Assessments	100%	30,688,042	3,581	304,484,250	82%	25,223,277	2,983	250,263,298	\$0.4504	\$0.0454	\$11,360,766	664,112	Measures
EEPS	Residential	Multi-Family Comprehensive EE	100%	5,665,327	551	45,297,180	97%	5,491,494	538	43,907,296	\$0.1736	\$0.0217	\$953,581	164,740	Measures

Portfolio	Sector	ComEd PY9 Program	Verified Gross Savings					Verified Net Savings					Participation		
			Verified Gross Realization Rate (%)	First Year Annual Energy Savings (kWh) - Gross	First Year Peak Demand Savings (kW) - Gross	Lifetime Savings (kWh) - Gross	NTG (%)	First Year Annual Energy Savings (kWh) - Net	First Year Peak Demand Savings (kW) - Net	Lifetime Savings (kWh) - Net	First Year Cost per First Year Net Annual Savings	First Year Cost per Net Lifetime Savings	Program Costs	# Units	Units Definition
EEPS	Residential	Residential New Construction	102%	1,450,191	712	26,103,438	65%	942,624	463	16,967,232	\$0.5972	\$0.0332	\$562,944	1,209	Homes
EEPS	Residential	Subtotal	100%	173,706,999	32,600	1,772,042,454	76%	131,957,697	26,882	1,415,437,517	\$0.4747	\$0.0443	\$62,637,814		
EEPS	Pilot Residential	Bigdely						99,586		99,586	\$30.6285	\$30.6285	\$3,050,170	1,218	Participants
EEPS	Pilot Residential	Nest Seasonal Savings*						3,521,806	5,247	3,521,806	NA	NA	NA	56,166	Thermostats
EEPS	Pilot Residential	Subtotal						3,621,392	5,247	3,621,392	\$0.8423	\$0.8423	\$3,050,170		
EEPS	EEPS Carryover	Instant Discounts (carryover)	100%	15,997,751	3,175	143,979,759	69%	11,007,378	2,186	99,066,402	\$ -	\$ -	\$ -	69,010	Bulbs
EEPS	EEPS Carryover	Lighting Discounts (carryover)	85%	41,574,846	4,624	176,197,564	63%	26,095,320	2,900	110,594,079	\$ -	\$ -	\$ -	1,317,793	Bulbs
EEPS	EEPS Carryover	Subtotal	89%	57,572,597	7,799	320,177,323	64%	37,102,698	5,086	209,660,481	\$ -	\$ -	\$ -		
EEPS		Portfolio Total	94%	1,092,312,350	158,298	11,883,405,883	173%	1,087,076,033	124,485	9,034,791,705	\$0.1598	\$0.0192	\$173,729,452		
IPA	IPA Business	Agriculture Energy Efficiency	99%	700,073	108	7,184,751	90%	630,066	97	6,466,279	\$0.1373	\$0.0134	\$86,522	564	Measures
IPA	IPA Business	AirCare Plus	99%	11,705,775	2,113	43,447,268	90%	10,535,198	1,902	39,102,543	\$0.3397	\$0.0915	\$3,579,146	3,623	Measures
IPA	IPA Business	CLEARresult LLLC	99%	8,993,491	1,761	98,117,571	90%	8,094,142	1,585	88,305,815	\$0.3607	\$0.0331	\$2,919,562	20,700	Measures
IPA	IPA Business	CLEARresult Schools DI	122%	1,352,207	261	5,713,131	95%	1,284,596	248	5,427,472	\$0.2902	\$0.0687	\$372,766	1,895	Measures
IPA	IPA Business	Elevate Energy Assisted & Senior Housing	107%	1,285,910	134	13,801,764	95%	1,221,614	127	13,111,670	\$0.4596	\$0.0428	\$561,424	2,603	Measures
IPA	IPA Business	Energy Advisor MBCx	120%	2,020,622		10,103,110	100%	2,020,622		10,103,110	\$0.4251	\$0.0850	\$858,965	79	Project
IPA	IPA Business	LED Street Lighting	100%	4,497,199	711	52,806,544	100%	4,497,199	711	52,806,544	\$0.2655	\$0.0226	\$1,194,068	6,536	Bulbs
IPA	IPA Business	Matrix DCV	100%	828,282		8,282,820	89%	737,171		7,371,710	\$0.2200	\$0.0220	\$162,178	177	Measures
IPA	IPA Business	Matrix K-12 Private Schools DI	100%	801,221	210	11,827,486	95%	761,160	199	11,236,113	\$0.1610	\$0.0109	\$122,560	4,362	Bulbs
IPA	IPA Business	New Construction Small Buildings	83%	1,112,042	126	19,349,531	77%	856,272	97	14,899,133	\$(0.0202)	\$(0.0012)	\$(17,290)	11	Project
IPA	IPA Business	Rural Small Business EE Kits	164%	3,612,400	455	25,703,981	90%	3,251,160	409	23,133,583	\$0.2723	\$0.0383	\$885,316	45,706	Kits
IPA	IPA Business	SEDAC Enhanced Building Optimization	99%	2,230,330	310	14,589,368	95%	2,118,813	295	13,859,897	\$0.2195	\$0.0336	\$465,058	287	Projects
IPA	IPA Business	Small Business	100%	281,829,211	39,070	4,085,612,646	91%	256,464,582	35,554	3,717,907,507	\$0.2630	\$0.0181	\$67,441,078	9,808	Projects
IPA	IPA Business	Small Commercial Lit Signage	101%	18,328,806	-	186,634,057	90%	16,495,926	-	167,970,657	\$0.2624	\$0.0258	\$4,328,704	61,975	Measures

Portfolio	Sector	ComEd PY9 Program	Verified Gross Savings					Verified Net Savings					Participation		
			Verified Gross Realization Rate (%)	First Year Annual Energy Savings (kWh) - Gross	First Year Peak Demand Savings (kW) - Gross	Lifetime Savings (kWh) - Gross	NTG (%)	First Year Annual Energy Savings (kWh) - Net	First Year Peak Demand Savings (kW) - Net	Lifetime Savings (kWh) - Net	First Year Cost per First Year Net Annual Savings	First Year Cost per Net Lifetime Savings	Program Costs	# Units	Units Definition
IPA	IPA Business	Subtotal	101%	339,297,569	45,259	4,583,174,028	91%	308,968,521	41,224	4,171,702,032	\$0.2685	\$0.0199	\$82,960,058		
IPA	IPA Residential	CLEAResult Community-based CFL Distribution	100%	21,383,364	2,142	101,993,003	100%	21,383,364	2,142	101,993,003	\$0.1047	\$0.0219	\$2,237,962	1,329,057	Bulbs
IPA	IPA Residential	Elevate Energy MF All Electric	70%	1,305,036	141	5,270,368	86%	1,126,851	121	4,550,771	\$0.3837	\$0.0950	\$432,355	17,716	Measures
IPA	IPA Residential	Home Energy Reports						442,029,131		442,029,131	\$0.0258	\$0.0258	\$11,405,061	1,995	Participants
IPA	IPA Residential	Lighting Discounts	99%	745,030,467	87,584	6,666,107,425	59%	443,104,671	52,147	3,964,647,714	\$0.1222	\$0.0137	\$54,158,878	20,060,412	Bulbs
IPA	IPA Residential	Low-income Kits (UIC ERC)	87%	5,581,491	581	38,890,940	100%	5,581,491	581	38,890,940	\$0.3901	\$0.0560	\$2,177,120	183,179	Kits
IPA	IPA Residential	NTC Gas & Electric Water Heater Kits	89%	2,232,283	278	13,124,154	100%	2,232,283	278	13,124,154	\$0.4532	\$0.0771	\$1,011,762	55,530	Measures
IPA	IPA Residential	Shelton Solutions Great Energy Stewards†						530,000		530,000	NA	NA	NA	-	NA
IPA	IPA Residential	Subtotal	99%	775,532,641	90,726	6,825,385,890	61%	915,987,791	55,269	4,565,765,712	\$0.0780	\$0.0156	\$71,423,138		
IPA	IPA Carryover	Lighting Discounts (carryover)	100%	34,429,116	4,014	145,913,382	60%	20,775,221	2,422	88,047,069	\$ -	\$ -	\$ -	1,055,558	Bulbs
IPA	IPA Carryover	Subtotal	100%	34,429,116	4,014	145,913,382	60%	20,775,221	2,422	88,047,069	\$ -	\$ -	\$ -		
IPA	Portfolio Total		100%	1,149,259,326	139,999	11,554,473,300	178%	1,245,731,533	98,915	8,825,514,814	\$0.1239	\$0.0175	\$154,383,195		
DCEO Bridge	Income Eligible	Affordable Housing New Construction	66%	39,790	10	565,935	100%	39,790	10	565,935	\$42.7835	\$3.0080	\$1,702,357	28,588	Measures
DCEO Bridge	Income Eligible	Illinois Home Weatherization Assistance Program (IHWAP)	113%	801,872	187	10,525,665	100%	801,872	187	10,525,665	\$1.5766	\$0.1201	\$1,264,202	410,097	Measures
DCEO Bridge	Income Eligible	Residential Retrofit: Energy Savers Multi-Family	81%	1,005,938	161	11,983,144	100%	1,005,938	161	11,983,144	\$1.2626	\$0.1060	\$1,270,089	10,952	Measures
DCEO Bridge	Income Eligible	Residential Retrofit: Single Family Retrofits (CBA)	96%	613,604	131	9,850,407	100%	613,604	131	9,850,407	\$1.5766	\$0.0982	\$967,386	178,452	Measures
DCEO Bridge	Income Eligible	Subtotal	92%	2,461,204	489	32,925,150	100%	2,461,204	489	32,925,150	\$2.1144	\$0.1581	\$5,204,033		
DCEO Bridge	Public Sector	C&I New Construction (DCEO)	81%	2,451,000		41,667,000	77%	1,887,270		32,083,590	\$0.2330	\$0.0137	\$439,700	9	Projects
DCEO Bridge	Public Sector	Custom (DCEO)	96%	447,093	71	5,923,955	83%	371,087	58	4,916,880	\$0.5025	\$0.0379	\$186,483	8	Projects
DCEO Bridge	Public Sector	Free Lights (DCEO)	103%	4,787,697	768	71,815,455	96%	4,596,190	737	68,942,850	\$0.4497	\$0.0300	\$2,066,878	47	Projects
DCEO Bridge	Public Sector	LED Street Lighting (DCEO)	100%	12,954,935	2,047	150,533,756	100%	12,954,935	2,047	150,533,756	\$0.1677	\$0.0144	\$2,172,196	14,303	Bulbs
DCEO Bridge	Public Sector	PHA Efficient Living (DCEO)	96%	435,059	77	5,089,843	100%	435,059	77	5,089,843	\$1.8292	\$0.1564	\$795,813	2,414	Measures
DCEO Bridge	Public Sector	Retrocommissioning (DCEO)	82%	200,539	11	1,403,773	95%	190,512	10	1,333,584	\$11.1451	\$1.5922	\$2,123,280	4	Projects

Portfolio	Sector	ComEd PY9 Program	Verified Gross Savings					Verified Net Savings					Participation		
			Verified Gross Realization Rate (%)	First Year Annual Energy Savings (kWh) - Gross	First Year Peak Demand Savings (kW) - Gross	Lifetime Savings (kWh) - Gross	NTG (%)	First Year Annual Energy Savings (kWh) - Net	First Year Peak Demand Savings (kW) - Net	Lifetime Savings (kWh) - Net	First Year Cost per First Year Net Annual Savings	First Year Cost per Net Lifetime Savings	Program Costs	# Units	Units Definition
DCEO Bridge	Public Sector	Savings Through Efficient Products (STEP), DCEO	99%	1,836,504	695	20,125,198	96%	1,763,043	667	19,320,180	\$0.3028	\$0.0276	\$533,838	7,960	Measures
DCEO Bridge	Public Sector	Standard (DCEO)	88%	16,650,521	1,807	207,499,191	65%	10,822,839	1,175	134,874,478	\$0.6417	\$0.0515	\$6,944,956	701	Projects
DCEO Bridge	Public Sector	Subtotal	93%	39,763,348	5,476	504,058,170	83%	33,020,935	4,771	417,095,161	\$0.4622	\$0.0366	\$15,263,144		
DCEO Bridge		Portfolio Total	93%	42,224,552	5,965	536,983,320	168%	35,482,139	5,260	450,020,311	\$0.5768	\$0.0455	\$20,467,177		
All		Grand Total	97%	2,283,796,228	304,262	23,974,862,502	72%	2,368,289,705	228,660	18,310,326,830	\$0.1472	\$0.0190	\$348,579,825		

*Costs included in all the other programs that distribute smart thermostat as a measure

†Costs weren't available in ComEd's PY9 cost summary workbook

Note: Costs included in this summary report are subject to change based on Navigant's final PY9 cost-effectiveness analysis which is underway at the time of issuing this summary.

Source: Evaluation Analysis

6. PY9 HIGH IMPACT MEASURES

This table provides the list of PY9 high impact measures and the percentage of verified gross savings for the business and residential sectors (all programs are grouped as business or residential).

Table 6-1. Summary Table of PY9 High Impact Measures - Business

Program Sector	High Impact Measure	End Use Type	Weighted Average Measure Life	First Year MWh Savings (Verified Gross)	Life Time MWh (Verified)	% MWh	Cumulative %
Business	LED Fixtures	Lighting	14.2	270,141	3,848,962	25%	25%
Business	Other Lighting	Lighting	11.1	339,259	3,773,611	25%	50%
Business	LED Lamps	Lighting	10.6	258,139	2,735,491	18%	68%
Business	Whole Building	Other	17.0	67,863	1,154,109	8%	75%
Business	Other Non-lighting	Other	10.6	107,024	1,131,123	7%	83%
Business	VSD	HVAC	14.2	30,836	439,248	3%	86%
Business	Other Non-lighting	HVAC	15.9	25,423	404,484	3%	88%
Business	Building EMS	Other	15.0	17,316	259,627	2%	90%
Business	Other Non-lighting	Refrigeration	11.9	16,657	198,107	1%	91%
Business	Industrial System	Other	12.4	12,650	157,371	1%	92%
Business	EC Motor with Evaporator Fan Controls for Walk-in Cooler or Freezer	Refrigeration	15.0	9,124	136,868	1%	93%
Business	T8 & T5 Retrofit/Relamp	Lighting	14.9	9,139	136,491	1%	94%
Business	Anti-Sweat Heater Controls for Glass Door Cooler or Refrigerator	Refrigeration	12.0	11,183	134,195	1%	95%
Business	Programmable/Reprogram Thermostats	HVAC	3.9	23,547	91,850	1%	95%
Business	Occupancy Sensor & Other Controls	Lighting	8.0	11,171	89,365	1%	96%
Business	Air Compressor	Compressed Air	13.5	6,177	83,198	1%	97%
Business	Optimization	Compressed Air	9.7	8,088	78,740	1%	97%
Business	LED Exit Signs, Channels & Traffic Signal	Lighting	9.6	7,422	71,366	0%	98%
Business	Fluorescent Retrofit/Relamp	Lighting	11.0	5,652	62,298	0%	98%
Business	LED Refrigerated Display Case Lighting	Refrigeration	15.0	3,695	55,428	0%	98%
Business	Air & Water Cooled Chillers	HVAC	20.0	2,126	42,528	0%	99%

Program Sector	High Impact Measure	End Use Type	Weighted Average Measure Life	First Year MWh Savings (Verified Gross)	Life Time MWh (Verified)	% MWh	Cumulative %
Business	HVAC Tune-Up	HVAC	2.4	11,578	28,063	0%	99%
Business	Compressed Air Leak Repair	Compressed Air	2.2	12,200	26,901	0%	99%
Business	Reduce Comp Air Demand	Compressed Air	13.0	1,072	13,936	0%	99%
Business	UPS	Consumer Electronics	20.0	681	13,629	0%	99%
Business	Air Cooled AC	HVAC	15.0	707	10,609	0%	99%
Business	Behavioral Savings	Behavioral	5.0	2,021	10,103	0%	99%
Business	Delamping	Lighting	11.0	909	10,002	0%	99%
Business	Engineered Nozzle	Compressed Air	15.0	605	9,072	0%	99%
Business	Battery Chargers	Other	20.0	453	9,065	0%	100%
Business	No-Loss Drain	Compressed Air	10.0	687	6,874	0%	100%
Business	Dryer	Compressed Air	10.0	645	6,452	0%	100%
Business	Auto Closer for Walk-in Cooler or Freezer	Refrigeration	8.0	743	5,946	0%	100%
Business	Pre-Rinse Spray Valve	Hot Water	5.0	1,132	5,659	0%	100%
Business	No-Loss Condensate Drains	Compressed Air	10.0	554	5,538	0%	100%
Business	Strip Curtains for Cooler or Freezer	Refrigeration	6.0	911	5,463	0%	100%
Business	Compressed Air Nozzles	Compressed Air	15.0	306	4,589	0%	100%
Business	EC Motor for Reach-in Cooler or Freezer	Refrigeration	15.0	264	3,955	0%	100%
Business	Bathroom Faucet Aerator	Hot Water	9.0	416	3,743	0%	100%
Business	Refrigerator	Appliances	12.0	303	3,641	0%	100%
Business	Advanced Power Strips Tier 1	Consumer Electronics	4.0	721	2,883	0%	100%
Business	Kitchen Faucet Aerator	Hot Water	9.0	290	2,609	0%	100%
Business	Vending, Beverage and Snack Machine Controls	Food Service	5.0	512	2,561	0%	100%
Business	Demand Controlled Ventilation	Food Service	15.0	161	2,422	0%	100%
Business	Custom	Other	13.0	183	2,376	0%	100%
Business	Induction Fixtures	Lighting	15.0	139	2,091	0%	100%
Business	CFL	Lighting	3.0	631	1,893	0%	100%

Program Sector	High Impact Measure	End Use Type	Weighted Average Measure Life	First Year MWh Savings (Verified Gross)	Life Time MWh (Verified)	% MWh	Cumulative %
Business	Livestock Waterer	Other	10.0	112	1,115	0%	100%
Business	Evaporator Fan Controls for walk-in coolers	Refrigeration	16.0	40	639	0%	100%
Business	Economizer	HVAC	5.0	91	455	0%	100%
Business	Reach-in (Novelty) Cooler Controls	Food Service	5.0	81	405	0%	100%
Business	Demand Controlled Ventilation	HVAC	10.0	37	366	0%	100%
Business	Hot Food Holding Cabinet	Food Service	12.0	27	320	0%	100%
Business	ENERGY STAR Dishwasher	Appliances	17.5	16	284	0%	100%
Business	Cogged V-Belt	HVAC	4.0	61	242	0%	100%
Business	Engine block heater timer	Other	3.0	76	229	0%	100%
Business	ENERGY STAR Solid or Glass Door Freezer	Refrigeration	12.0	17	205	0%	100%
Business	Ventilation Fan	HVAC	7.0	24	171	0%	100%
Business	Compressed Air Pressure Reduction	Compressed Air	5.0	21	104	0%	100%
Business	Room & Central Air Conditioner	HVAC	11.7	9	102	0%	100%
Business	Weather Stripping	Shell	15.0	6	96	0%	100%
Business	ENERGY STAR Solid or Glass Door Refrigerator	Refrigeration	12.0	7	84	0%	100%
Business	Night Covers	Refrigeration	5.0	16	79	0%	100%
Business	Efficient Refrigerated CA Dryer	Compressed Air	10.0	6	61	0%	100%
Business	Tankless Water Heater	Hot Water	5.0	12	60	0%	100%
Business	Low Flow Showerhead	Hot Water	10.0	4	35	0%	100%
Business	Metal Halides	Lighting	15.0	2	33	0%	100%
Business	Ice Maker	Food Service	10.0	3	32	0%	100%
Business	Cool Roof	Shell	15.0	0	6	0%	100%

Source: Evaluation Analysis

Table 6-2. Summary Table of PY9 High Impact Measures - Residential

Program Sector	High Impact Measure	End Use Type	Weighted Average Measure Life	First Year MWh Savings (Verified Gross)	Life Time MWh (Verified)	Percent MWh	Cumulative Percent
Residential	LED Lamps	Lighting	9.3	623,427	5,820,759	65%	65%
Residential	LED Fixtures	Lighting	10.2	97,864	1,000,047	11%	76%
Residential	Other Non-lighting	Refrigeration	8.0	58,357	466,857	5%	81%
Residential	CFL	Lighting	3.9	83,163	322,982	4%	85%
Residential	Other lighting	Lighting	4.2	76,004	322,111	4%	89%
Residential	Advanced Thermostat	HVAC	10.0	27,519	275,188	3%	92%
Residential	Other Non-lighting	HVAC	20.0	9,582	191,598	2%	94%
Residential	Room & Central Air Conditioner	HVAC	18.0	6,576	118,358	1%	95%
Residential	Freezer	Appliances	8.0	7,397	59,438	1%	96%
Residential	Retail Air Purifier	Appliances	9.0	4,900	44,102	0%	96%
Residential	Ductless Heat Pumps	HVAC	18.0	1,901	34,217	0%	97%
Residential	Refrigerator	Appliances	12.0	2,667	32,009	0%	97%
Residential	Clothes Washer	Appliances	14.0	2,277	31,873	0%	97%
Residential	Advanced Power Strips Tier 1	Consumer Electronics	4.0	7,717	30,869	0%	98%
Residential	Air Purifier	Appliances	9.0	2,919	26,268	0%	98%
Residential	Whole Building	Other	18.0	1,450	26,103	0%	98%
Residential	Low Flow Showerhead	Hot Water	10.0	2,458	24,582	0%	99%
Residential	Advanced Power Strip - Tier 2	Consumer Electronics	7.0	2,649	18,540	0%	99%
Residential	Pool Pump	Other	10.0	1,824	18,236	0%	99%
Residential	Air Sealing	Shell	15.0	1,053	15,796	0%	99%
Residential	Attic Insulation	Shell	25.0	468	11,694	0%	99%
Residential	Programmable/Reporgram Thermostats	HVAC	1.8	4,559	8,209	0%	99%
Residential	Kitchen Faucet Aerator	Hot Water	9.0	856	7,702	0%	99%
Residential	Ground Source Heat Pump	HVAC	25.0	262	6,559	0%	100%
Residential	Air Source Heat Pump	HVAC	18.0	340	6,112	0%	100%
Residential	Ventilation Fan	HVAC	19.0	301	5,725	0%	100%

Program Sector	High Impact Measure	End Use Type	Weighted Average Measure Life	First Year MWh Savings (Verified Gross)	Life Time MWh (Verified)	Percent MWh	Cumulative Percent
Residential	Electric Clothes Dryer	Appliances	14.0	399	5,580	0%	100%
Residential	Duct Sealing	Shell	20.0	214	4,278	0%	100%
Residential	Room & Central Air Conditioner	Appliances	4.8	745	3,610	0%	100%
Residential	Wall Insulation	Shell	25.0	134	3,352	0%	100%
Residential	Water Dispenser	Appliances	10.0	293	2,932	0%	100%
Residential	Heat Pump Water Heater	Hot Water	13.0	162	2,109	0%	100%
Residential	Bathroom Faucet Aerator	Hot Water	9.0	198	1,780	0%	100%
Residential	Package Terminal Heat Pump	HVAC	15.0	78	1,170	0%	100%
Residential	Sidewall Insulation	Shell	25.0	40	1,001	0%	100%
Residential	T8 & T5 Retrofit/Relamp	Lighting	15.0	66	992	0%	100%
Residential	LED Exit Signs, Channels & Traffic Signal	Lighting	16.0	47	745	0%	100%
Residential	Other Lighting	Lighting	13.8	32	441	0%	100%
Residential	Heat Pump Water Heater	HVAC	13.0	32	413	0%	100%
Residential	Furnace	HVAC	20.0	16	312	0%	100%
Residential	Pipe Insulation	Hot Water	15.0	19	280	0%	100%
Residential	Shower Timer	Hot Water	2.0	96	192	0%	100%
Residential	Basement / Sidewall Insulation	Shell	25.0	7	181	0%	100%
Residential	Foundation Wall Insulation	Shell	25.0	7	173	0%	100%
Residential	Thermostat Education	HVAC	2.0	81	162	0%	100%
Residential	Occupancy Sensor & Other Controls	Lighting	8.0	19	153	0%	100%
Residential	Water Heater Temperature SetBack	Hot Water	2.0	43	86	0%	100%
Residential	Crawl Space Insulation	Shell	25.0	2	59	0%	100%
Residential	Windows	Shell	25.0	1	37	0%	100%
Residential	Water Temperature Gauge Card	Hot Water	2.0	6	11	0%	100%

Source: Evaluation Analysis