



ComEd

Midstream Incentives Program Evaluation Report

FINAL
Energy Efficiency / Demand Response Plan:
Plan Year 8 (PY8)
(6/1/2015-5/31/2016)

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E. EXECUTIVE SUMMARY

This report presents a summary of the findings and results from the impact and process evaluations of the Program Year 8 (PY8)¹ Midstream Incentives program. The primary component of Midstream Incentives focuses on lighting products and is branded the Business Instant Lighting Discounts (BILD) program. The BILD program provides incentives to increase the market share of energy efficient LED lamps, LED fixtures, LED exit signs, and linear fluorescent lamps (LF). Compact fluorescent lamps, LF ballasts, and high intensity discharge (HID) lamps were included in the program in prior years, but have been removed from BILD in PY8. Additionally, as in PY7, midstream incentives for commercial battery chargers were offered as part of the Business Products Discounts (BPD) program. The program was designed to provide an expedited, simple solution to business customers interested in purchasing efficient lighting by providing instant discounts at the point of sale.

E.1. Program Savings

Table E-1 summarizes the total electricity savings from the PY8 Midstream Incentives program. Table E-1 also includes verified PY8 net carryover savings. All savings from the Midstream Incentives program are attributable to the EEPs portfolio. The verified gross savings estimate of 282,451 MWh represents a gross realization rate of 97 percent (i.e., verified savings were 97 percent of the ex ante gross savings estimate). Verified savings were lower than ComEd ex ante savings primarily due to differences in hours of use parameters and because ex ante estimates do not include a residential / nonresidential split. Differences in ex ante and verified hours of use are attributed to the evaluation’s classification of end-user business types as specified in the IL TRM v4.0, compared to the default ex ante value of “Unknown.” The TRM also specifies a split of four percent residential and 96 percent non-residential for LED bulbs and fixtures, and one percent / 99 percent for linear fluorescent lamps. Commercial installations have higher deemed hours of use and interactive effects values than residential installations, so attributing savings to residential installations has a downward impact on savings.

Table E-1. PY8 Total Program Electric Savings

Savings Category	Energy Savings (MWh)	Demand Savings (MW)	Summer Peak Demand Savings (MW)	Winter Peak Demand Savings (MW)
Ex Ante Gross Savings	292,353	NR	NR	NR
Verified Gross Savings	282,451	61.6	57.4	49.6
Verified Net Savings	191,523	41.5	39.0	33.8
Verified Net Carryover Savings	19,687	4.6	4.0	3.4
Verified Total PY8 Net Savings	211,210	46.1	43.0	37.2

Source: ComEd tracking data and Navigant team analysis.

E.2. Program Savings by Measure

Table E-2 and Table E-3 summarize the energy, demand, and peak demand savings from the ComEd PY8 BILD and BPD programs by measure type. As these tables show, LED lamps made up approximately 84 percent of the total program verified net MWh and 87 percent of net peak MW (summer and winter). LED fixtures and exit signs accounted for approximately eight percent of verified net MWh

¹ The PY8 program year began June 1, 2015 and ended May 31, 2016.

and six percent of net peak MW impacts, and linear fluorescent lamps made up approximately four percent of verified net MWh and three percent of peak MW savings.

Table E-2 and Table E-3 also include line items for PY8 carryover² and Small Business Energy Savings (SBES) program overlap. The SBES overlap is a negative adjustment because some products incentivized through the BILD program are also incentivized through the SBES program. Because both programs cannot claim full savings for these measures, adjustments are made to properly attribute savings between the two programs. Additional detail on PY8 carryover savings can be found in Sections 3.2 and 3.4. Additional detail on SBES overlap methods and savings adjustments can be found in Section 3.4.

Table E-2. PY8 Program Energy and Demand Results by Measure

Research Category	Ex Ante Gross Savings (MWh)	Verified Gross Savings (MWh)	Verified Gross Realization Rate	Verified Gross Demand Reduction (MW)	NTGR	Verified Net Savings (MWh)	Verified Net Demand Reduction (MW)
LED Lamps	244,030	230,169	94%	51.8	0.77	177,230	39.9
LED Fixtures	12,731	16,039	126%	2.7	0.77	12,350	2.1
LED Exit Signs	5,754	5,734	100%	0.5	0.77	4,415	0.4
Linear Fluorescents	13,346	13,080	98%	2.2	0.61	7,979	1.3
Battery Chargers	201	201	100%	0.1	0.77	155	0.1
Carryover	31,002	31,002	100%	7.3	0.64	19,687	4.6
SBES Overlap	-14,710	-13,773	94%	-3.0	0.77	-10,605	-2.3
Total	292,353	282,451	97%	61.6	0.75	211,210	46.1

Source: ComEd tracking data and Navigant team analysis.

† An overall savings-weighted ratio based on deemed values - the actual weighted NTGR is 0.748.

Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

Table E-3. PY8 Program Summer and Winter Peak Demand Results by Measure

Research Category	Verified Gross Summer Peak Savings (MW)	Verified Gross Winter Peak Savings (MW)	NTGR	Verified Net Summer Peak Savings (MW)	Verified Net Winter Peak Savings (MW)
LED Lamps	48.6	41.9	0.77	37.4	32.3
LED Fixtures	2.6	2.2	0.77	2.0	1.7
LED Exit Signs	0.8	0.8	0.77	0.6	0.6
Linear Fluorescents	2.1	1.8	0.61	1.3	1.1
Battery Chargers	0.03	-	0.77	0.02	-
Carryover	6.3	5.3	0.64	4.0	3.4
SBES Overlap	-3.1	-2.4	0.77	-2.4	-1.8
Total	57.4	49.6	0.75	43.0	37.2

Source: ComEd tracking data and Navigant team analysis.

† An overall savings-weighted ratio based on deemed values. Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

E.3. Impact Estimate Parameters for Future Use

The PY8 Midstream Incentives program evaluation did not conduct evaluation research on deemed parameters, and, thus, there are no parameter updates to report.

² PY8 carryover savings result from products purchased in prior program years but not installed until subsequent program years. PY8 carryover savings are from products purchased through the BILD program in PY6 and PY7.

E.4. Program Volumetric Detail

The PY8 BILD and BPD programs incentivized more than one and a half million lamps, fixtures, and battery chargers as shown in the table below. Reductions in total unit sales volume in PY8 compared to PY7 are primarily due to the removal of CFLs and LF ballasts from the program in PY8.

Table E-4. PY8 Volumetric Findings Detail

Program Year	Standard CFLs	Specialty CFLs	LEDs	Linear FLs	HIDs	LF Ballasts	Battery Chargers	Total
PY8	N/A	N/A	1,131,992	503,948	N/A	N/A	76	1,636,016
PY7	279,320	261,262	1,109,148	791,443	2,025	67,331	160	2,510,689
PY6	343,577	362,332	804,299	840,903	2,607	67,391	N/A	2,421,109
PY5	249,799	347,639	211,955	503,627	2,799	N/A	N/A	1,315,819
PY4	194,180	381,072	N/A	N/A	N/A	N/A	N/A	575,252
PY3	4,173	929	N/A	N/A	N/A	N/A	N/A	5,102

Source: ComEd tracking data and Navigant team analysis.

Table E-5 displays the number of enrolled and participating distributors and end-users.

Table E-5. PY8 Enrolled and Participating Distributors and End Users

Program Participants	Enrolled	Participating
Distributors	103	88
End Users	NA	~6,500 – 7,500 ³

Source: ComEd tracking data and Navigant team analysis.

³ The exact number of unique end users is unknown due to multiple various name and address combinations for the same end-user in the tracking data.

E.5. Results Summary

The following table summarizes the key metrics from PY8.

Table E-6. PY8 Results Summary

Participation	Units	PY8
Net Savings	MWh	211,210
Net Summer Peak Demand Reduction	MW	43.0
Net Winter Peak Demand Reduction	MW	37.2
Gross Savings	MWh	282,451
Gross Summer Peak Demand Reduction	MW	57.4
Gross Winter Peak Demand Reduction	MW	49.6
Carryover Net Savings	MWh	19,687
Carryover Net Summer Peak Demand Reduction	MW	4.0
Carryover Net Winter Peak Demand Reduction	MW	3.4
Carryover Gross Savings	MWh	31,002
Carryover Gross Summer Peak Demand Reduction	MW	6.3
Carryover Gross Winter Peak Demand Reduction	MW	5.3
SBES Overlap Net Savings Reduction	MWh	-10,605
SBES Overlap Net Summer Peak Demand Reduction	MW	-2.4
SBES Overlap Net Winter Peak Demand Reduction	MW	-1.8
SBES Overlap Gross Savings Reduction	MWh	-13,773
SBES Overlap Gross Summer Peak Demand Reduction	MW	-3.1
SBES Overlap Gross Winter Peak Demand Reduction	MW	-2.4
Program Realization rate	%	97%
Program NTG Ratio [†]	%	75%
LEDs Sold	#'s	1,106,695
LED Exit Signs Sold	#'s	25,297
LFs Sold	#'s	503,948
Non-Lighting Products Sold	#'s	76
Non-Lighting Products Net Savings	MWh	155
Customers touched	#'s	-6,500 to 7,500

Source: ComEd tracking data and Navigant team analysis.

[†] An overall savings-weighted ratio for all measure types based on deemed values - the actual weighted NTGR is 0.748.

Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

E.6. Findings and Recommendations

The following provides insight into some of the key program findings and recommendations.⁴

Verified Gross Impacts and Realization Rate

Finding 2. The PY8 gross verified energy savings were estimated to be 282,451 MWh. LEDs comprised 89 percent of program energy savings. The gross realization rate on this savings estimate is 97 percent. Verified savings were lower than ComEd ex ante savings primarily due to differences in hours of use by business type as specified in the IL TRM v4.0, and because ex ante estimates do not include a residential / nonresidential split. The IL TRM specifies a split of 4 percent residential and 96 percent commercial for LED lamps and one percent / 99 percent for linear fluorescent lamps. Commercial installations have higher deemed hours of use and interactive effects values than residential installations, so attributing savings to residential installs has a downward impact on savings.

Recommendation 2. ComEd could improve their ex ante savings estimates by establishing preliminary business types for end-users where possible and applying the associated parameters from the TRM. Estimates could also be improved by applying the deemed residential and nonresidential splits and the other appropriate deemed residential parameters (hours of use, interactive effects, etc.).

Finding 3. The PY8 gross verified summer peak demand reduction was 57.4 MW and winter peak demand savings were 49.6 MW. The net verified summer and winter peak demand reductions were 43.0 MW and 37.2 MW, respectively. As in PY7, the largest portion of these savings are due to LED sales, which comprised 93 percent of verified net peak demand savings.

Verified Net Impacts

Finding 4. The overall unit sales-weighted net-to-gross ratio (NTGR) found in this evaluation was 0.75 based on deemed values.⁵ The BILD and BPD programs accomplished 211,210 MWh of net energy savings, 43.0 MW of summer peak demand reduction, and 37.2 MW of winter peak demand reductions. Over 91 percent of these energy savings were from LED lamps, fixtures, and exit signs while only four percent were from linear fluorescents. Verified summer and winter peak demand savings were also dominated by LEDs (approximately 93 percent).

Process Evaluation

Finding 6. In November of PY8, ComEd instituted the requirement that BILD distributors provide customer contact information and the business name and address where the lamps were to be installed. After this requirement was instituted, almost two-thirds (62.7 percent) of distributors were able to collect information for all BILD transactions. The primary reasons why distributors were not able to capture all BILD transactions were that the customer did not want to provide it (61 percent) or the customer was a contractor that did not know where the lamps would be installed (21 percent).

Recommendation 4. The evaluation team has recommended that ComEd collect the purchaser contact information rather than the end-user contact information, which should alleviate the issue surrounding contractor purchases. Tying the distributor bonus to the successful collection of customer contact information could potentially encourage extra effort to be made for the remaining transactions.

Finding 9. In November 2015, the BILD program instituted a new minimum customer co-pay of 50 percent of each lamp type's incentive amount for all program transactions. The vast

⁴ This is a subset of our findings and recommendations. Numbered findings and recommendations in this section are the same as those found in the Findings and Recommendations section of the evaluation report for ease of reference between each section.

⁵ Deemed values. Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

majority claimed that a minimal amount of sales in each category (0-5 percent) triggered the minimum copays, but there were several distributors who claimed that 100 percent of their BILD transactions for a given lamp category triggered the minimum copay. Most of the participants thought that the minimum copay was beneficial to the program, stating that it balances the playing field for distributors and increases customer interest in the bulbs, by legitimizing the investment in energy efficiency.

Recommendation 7. ComEd should maintain a close eye on this metric. A large percentage of lamp sales triggering the minimum customer co-pay would indicate that market prices have dropped and that incentive levels need to be revisited or certain low-quality products should be removed from the approved products list (APL).

Finding 10. In PY8, there were 30-day funding periods instituted between July and November, and 45-day to 60-day funding periods defined for the remainder of the program year. To help inform the design of additional funding cycles, distributors were asked over what time period they could accurately forecast (within 10%) their need for BILD funds. Over 80% of distributors estimate that they can forecast their need for BILD funding for one to three months into the future.

Recommendation 8. The evaluation recommends that ComEd require program distributors to forecast their need for incentives 90 days in advance, which captures the time period over which the majority of distributors feel they can accurately forecast their need for funding.

1. INTRODUCTION

1.1 Program Description

The Non-Residential Business Instant Lighting Discounts (BILD) program and Business Products Discounts (BPD) program provide incentives to increase the market share of energy efficient products commonly sold to business customers. The BILD Program was launched as a pilot in PY3 (originally called the Midstream Incentives program) and was a full scale program in PY4. The program was designed to provide an expedited, simple solution to business customers interested in purchasing efficient lighting by providing instant discounts at the point of sale. The BPD program offers commercial, industrial and contractor customers discounts, at the time of sale, on high-efficiency battery chargers.

At this time the BILD Program provides incentives on a mix of standard and specialty LEDs (lamps and fixtures), LED exit signs, and linear fluorescent (LF) lamps. The BPD program only offers incentives on battery chargers (transformers were previously included in the program but have been removed in PY8). The PY8 rebate values vary by technology, as follows:

- LED lamps (screw based and pin based) \$2 to \$12.
- LED trim kits \$5 to \$10
- LED exit signs \$5 to \$15
- Linear fluorescent lamps \$1
- Industrial battery chargers \$184 per unit.

In PY8, BILD program sales came from a total of 88 unique distributors (this is a decrease from 95 unique distributors in PY7). BILD products were sold to approximately 6,500 to 7,500 unique end-users.⁶ All BILD program unit sales were delivered via the “distributor program.” In prior program years, a small fraction of products were sold through a “retail program,” which sells bulbs directly to contractors through the pro desk of major Do-it-Yourself retailers, but this delivery channel was not included in the PY8 program.

1.2 Evaluation Objectives

The Evaluation Team identified the following key researchable questions for PY8.

1.2.1 Impact Questions

1. What is the level of gross annual energy (kWh) and gross peak demand (kW) savings induced by the program?
2. What is the level of net annual energy (kWh) and net peak demand (kW) savings induced by the program?
3. Did the program meet its energy and demand goals? If not, why not?

1.2.2 Process Questions

1. How burdensome is the rebate application and submission process for distributors? Specifically, what is the level of effort required by distributors to gather the end-user information required by the evaluation team and what are best practices that would reduce this burden?
2. What other aspects of the program can be improved from the program distributors' perspective?

⁶ The exact number of unique end-users is unknown due to multiple various name and address combinations for the same end-user in the tracking data.

2. EVALUATION APPROACH

The PY8 BILD and BPD program evaluation primarily consists of a verification analysis. That is, ex ante energy and demand savings calculations in the program tracking data were verified by the evaluation team using the deemed values and methods described in the Illinois Statewide Technical Reference Manual (TRM), Version 4.0.⁷ The BILD evaluation typically includes additional “evaluation research,” which is aimed at collecting data to support and refine future updates to the TRM for relevant parameters such as installation rate, residential / non-residential split, and net-to-gross ratio. The evaluation team postponed additional evaluation research on these parameters until PY9. Beyond the verification analysis, the PY8 evaluation also included process research with program distributors to identify opportunities for streamlining and improving the BILD program.

Finally, in many of the tables throughout this report, there is a line item for Small Business Energy Savings (SBES) program overlap. Subsequent to the beginning of the PY7 evaluation year, an overlap was identified between the ComEd BILD program and the ComEd Small Business Energy Savings program. The SBES program offers free energy audits, contractor quotes and incentives for upgrades, as well as direct installation services for little to no customer cost. Part of the SBES program includes lighting retrofits with BILD qualified products. SBES trade allies receive a combined materials and labor incentive for installing energy efficient lighting for small businesses, which also includes the BILD discount through a BILD distributor trade ally. In PY7, it was not possible to determine record level overlap between the two programs. Due to this, savings from any BILD qualified product installed through the SBES program was subtracted from SBES program savings, regardless of whether that product actually received a BILD discount. In PY8, ComEd decided to attribute the savings between the two programs rather than subtracting all savings from SBES. The tracking data still does not allow for a record level accounting, but ComEd and the evaluation team developed a methodology to attribute savings to the two programs based on the relative incentive amounts paid by each program weighted by the total savings for each product category.

2.1 Overview of Data Collection Activities

The core data collection activities for the evaluation of the PY8 Midstream programs included in-depth analysis of the program tracking data and a web survey of program distributors. Other primary data sources used to complete the evaluation included tracking spreadsheets from the program implementers and the Illinois TRM v4.0.⁸ The full set of data collection activities is shown in Table 2-1 and Table 2-2.

Table 2-1. Primary Data Collection Activities

What	Who	Target Completes	Completes Achieved	When	Comments
Program Tracking Database	Participants	N/A	N/A	July – September. 2016	Data supporting Gross and Net impact assessment
In Depth Interviews	Program Manager/Implementer Staff	2	2	July – September. 2016	Data to inform the overall evaluation approach
Web Survey ⁹	BILD Distributors	Census	75	May – June. 2016	Data supporting process evaluation

⁷ Source: http://www.ilsag.info/il_trm_version_4.html

⁸ Source: http://www.ilsag.info/il_trm_version_4.html

⁹ The survey instrument can be found in Appendix 7.3.

Table 2-2. Additional Resources

Reference Source	Author	Application	Gross Impacts
Illinois Technical Reference Manual	VEIC	Verified Savings Ex Ante Assumptions	X
Workpaper on Battery Chargers ¹⁰	DNV GL / PG&E	Verified Savings Ex Ante Assumptions	X
SBES Program Tracking Data	ComEd	Gross and Net Impact Assessment	X

2.2 Verified Savings Parameters

Verified gross and net savings (energy and coincident peak demand) resulting from the PY8 program were calculated using the following algorithms as defined by the Illinois TRM version 4.0:¹¹

Verified Gross Annual kWh Savings = Program bulbs * Delta Watts/1000 * HOU * IEe* ISR

Verified Gross Annual kW Savings = Program bulbs * Delta Watts/1000 * ISR

Verified Gross Annual Summer Peak kW Savings = Gross Annual kW Savings * Summer Peak Load CF * IEd

Verified Gross Annual Winter Peak kW Savings = Gross Annual kW Savings x Winter Peak CF¹²

Where:

- Delta Watts = Difference between the Baseline Wattage and Energy Efficient Wattage
- HOU = Annual Hours of Use
- ISR = Installation Rate
- Summer Peak Load CF = Peak Load Coincidence factor is calculated as the percentage of program bulbs turned on during peak hours (weekdays from 1 to 5 p.m.) throughout the summer.
- Winter Peak CF = Peak load coincidence factor, the percentage of Program Bulbs turned on during the PJM Winter Peak hours¹³
- IEe = Energy Interactive Effects
- IEd = Demand Interactive Effects

The following table presents the parameters that were used in the verified gross and net savings calculations and indicates which were examined through evaluation activities and which were deemed. Deemed parameters from the TRM were used directly for all BILD products. Battery chargers are not included in the TRM and ComEd submitted a workpaper to the Illinois TRM administrator based on Pacific Gas and Electric Company research that presented verified savings parameters.

¹⁰ Based on Pacific Gas and Electric Company research and a DNV GL workpaper. See Section 7.3.

¹¹ Source: http://www.ilsag.info/il_trm_version_4.html

¹² Because ComEd is an electric utility and the majority of ComEd's customer have gas heating, no heating penalties have been included in the winter peak savings estimate.

¹³ The Winter Peak Period is defined by PJM as the period from 6-8 am and 5-7 pm, Central Time Zone, between January 1 and February 28.

Table 2-3. Verified Savings Parameter Data Sources

Gross Savings Input Parameters	Data Source	Deemed † or Evaluated?
Program Bulbs	PY8 Program Tracking Data	Evaluated
Delta Watts	TRM v4.0	Deemed
Res / Non-Res Split	TRM v4.0	Deemed
Hours of Use (HOU)	TRM v4.0	Deemed
Peak Coincidence Factor (CF)	TRM v4.0	Deemed
Energy Interactive Effects	TRM v4.0	Deemed
Demand Interactive Effects	TRM v4.0	Deemed
Installation Rate	TRM v4.0	Deemed
All Battery Charger parameters	ComEd Workpaper	Evaluated
NTGR	Statewide Advisory Group process (EEPS)†	Deemed

† Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

2.2.1 Verified Gross Program Savings Analysis Approach

The evaluation team calculated verified savings by measure based upon available data. The data used to estimate the verified gross program savings came from the PY8 program tracking data and the IL TRM v4.0.¹⁴ Tracking data was used to weight the deemed parameters found in the TRM.

2.2.2 Verified Net Program Savings Analysis Approach

Verified net energy and demand (coincident peak and overall) savings were calculated by multiplying the verified gross savings estimates by a net-to-gross ratio (NTGR). In PY8, the NTGR estimates used to calculate the net verified savings were based on past evaluation research and defined through a negotiation process through SAG; the NTG SAG discussions occur between early January of each year and are completed by March 1st. BILD PY8 NTG values were based upon NTG evaluation research in PY5 and PY6.¹⁵ There was no evaluation research conducted in PY8 to support future updates to the SAG recommended values.

2.3 Process Evaluation

Midstream incentive delivery mechanisms are beneficial because they reduce the administrative burden of processing thousands of downstream rebate applications. Similarly, because rebates are submitted by the distributor, all burden is removed from the end-user. However, due to this approach, a lack of end-user information has been a consistent challenge for evaluation of this program. Beginning in November 2015, ComEd asked distributors to capture additional end-user information in the rebate submissions. The PY8 process evaluation primarily explores how distributors are collecting, organizing, and submitting the required information and determine if this process is too burdensome for some distributors and identify best practices for streamlining this activity in future program years. The evaluation team utilized a brief web survey sent to all program distributors to provide insight into these process-related issues.

¹⁴ Source: http://www.ilsag.info/il_trm_version_4.html

¹⁵ Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

3. GROSS IMPACT EVALUATION

This section presents the results of the verified gross impact findings.

3.1 Tracking System Review

The tracking system review in the PY8 BILD program was an iterative process. ComEd provided a comprehensive dataset that only included current program year records based on collaboration with the evaluation team from the previous year. Initial checks ensured that the current program year records were complementary and non-overlapping with bulb sales attributed to previous program years. Records were also checked to verify that the bulbs were bought and installed in ComEd territory in the PY8 date range.

The evaluation also strived to assign business types to each transaction, as specified in the IL TRM. The evaluation team used the purchaser business name (or end-user business name where available) to assign a more accurate business type to each end-user where possible. An algorithm using keywords found in the purchasers' business names was used to automatically assign business types. However, due to the fact that the collection of end-user data began partway through the program year and given the large scale of transactions, the automated classification of end-users may not be completely accurate for all transactions. Thus, a manual QC process was employed for the top 50% of purchasers by sales volume. During this process, approximately 25% of the assignments were updated. Due to this relatively high error rate, the evaluation team assigned the ex-ante business type of "Unknown" for all records that were not reviewed (the bottom 50% of purchasers by sales volume). Additionally, where the evaluation team identified the purchaser as a contractor, the business type was also assigned as "Unknown" because contractors may install lamps at a variety of business types. At the conclusion of this process, the evaluation team was able to establish business type for 4 percent of BILD transactions (22 percent of total sales volume). Table 3-1 shows the distribution of the assigned business types used in the analysis – this is a new table that has not been included in prior BILD evaluation reports. The evaluation analysis was only able to confidently establish business type for a small fraction of overall sales volume. However, the distribution of business types within the program can have a potentially large effect (upward or downward) on program energy and coincident peak demand savings, and the evaluators recommend that ComEd and the implementation team continue to work collaboratively with evaluation efforts to improve business type assignments.

The evaluation team also reviewed the bulb information by manufacturer and model number. The wattage and lumens were verified for measures with over 1 GWh in gross savings, accounting for approximately 60 percent of the entire program savings. For directional LEDs, center beam candlepower (CBCP), beam angle, and lamp diameter were also verified. This resulted in a handful of minor changes to these fields to increase the accuracy of impact calculations. The evaluation team also looked up reflector types (e.g., PAR38, BR20, etc.) for each of the directional LEDs. These are necessary to use the lumen mappings in the IL TRM v4.0 to determine delta watts of these bulbs.

Overall, the tracking data was very accurate in terms of bulb information and application of the IL TRM. After each of the validation steps above, there were only 18 model numbers with discrepancies between reported and TRM-based savings calculations. About half of these discrepancies were a result of updates to lamp specifications based on lookups. The remainder was due to incorrect assignment of lamp type (e.g., candelabra classified as an A-lamp).

Table 3-1. Distribution of End-User Business Types

End-User Business Type	Transactions	Percent	Total Units Sold	Percent
Assisted Living	2	0.0%	7,420	0.5%
College	108	0.5%	66,683	4.1%
Garage	1	0.0%	6,000	0.4%
Grocery	12	0.1%	8,619	0.5%
Hospital - FCU	79	0.4%	37,709	2.3%
Hotel/Motel - Common	81	0.4%	19,661	1.2%
Hotel/Motel - Guest	108	0.5%	52,178	3.2%
MF - High Rise - Common	8	0.0%	2,556	0.2%
MF - Mid Rise	42	0.2%	21,390	1.3%
Office - Mid Rise	269	1.2%	95,773	5.9%
Religious Building	17	0.1%	5,434	0.3%
Restaurant	2	0.0%	34	0.0%
Retail - Department Store	49	0.2%	4,190	0.3%
Retail - Strip Mall	124	0.6%	15,963	1.0%
Unknown	16,757	77.4%	804,877	49.2%
Warehouse	14	0.1%	24,404	1.5%
Contractor (Unknown)	3,967	18.3%	463,049	28.3%

Source: ComEd tracking data and Navigant team analysis.

3.2 Program Volumetric Findings

As shown in Table 3-2, the total number of units sold during the PY8 BILD and BPD programs was 1,636,016, which is a 35 percent decrease from the total units sold in PY7. The decrease between program years was largely due to the removal of CFLs, LF ballasts, and HIDs from the program in PY8. LEDs¹⁶ comprised 69 percent of PY8 BILD sales. Linear fluorescent lamps made up 31 percent of sales. Product sales are represented graphically in Figure 3-1. Compared to PY7, the total sales of LEDs increased by two percent and total sales of linear fluorescent lamps decreased by 36 percent. It is unknown what caused the large drop in reduced wattage LFs in PY8. However, as part of the distributor survey, over 70 percent of respondents said that they sold high-efficiency lamps in PY8 that did not receive BILD discounts. Approximately 47 percent of these high-efficiency, non-discounted lamps were reduced wattage linear fluorescents. This may indicate that additional LF products could be added to the Approved Products List (APL).

Key findings include:

1. Overall unit sales decreased 35 percent compared to PY7, largely due to removal of CFLs and LF ballasts from the program.
2. LED unit sales were almost stagnant, increasing by two percent over PY7.
3. Linear fluorescent lamp sales decreased 36 percent from PY7, compared to a 6 percent decrease between PY6 and PY7.

¹⁶ Including LED Fixtures and exit signs.

Table 3-2. PY8 Volumetric Findings Detail

Program Year	Standard CFLs	Specialty CFLs	LEDs	Linear FLs	HIDs	LF Ballasts	Battery Chargers	Total
PY8	N/A	N/A	1,131,992	503,948	N/A	N/A	76	1,636,016
PY7	279,320	261,262	1,109,148	791,443	2,025	67,331	160	2,510,689
PY6	343,577	362,332	804,299	840,903	2,607	67,391	N/A	2,421,109
PY5	249,799	347,639	211,955	503,627	2,799	N/A	N/A	1,315,819
PY4	194,180	381,072	N/A	N/A	N/A	N/A	N/A	575,252
PY3	4,173	929	N/A	N/A	N/A	N/A	N/A	5,102

Source: ComEd tracking data and Navigant team analysis.

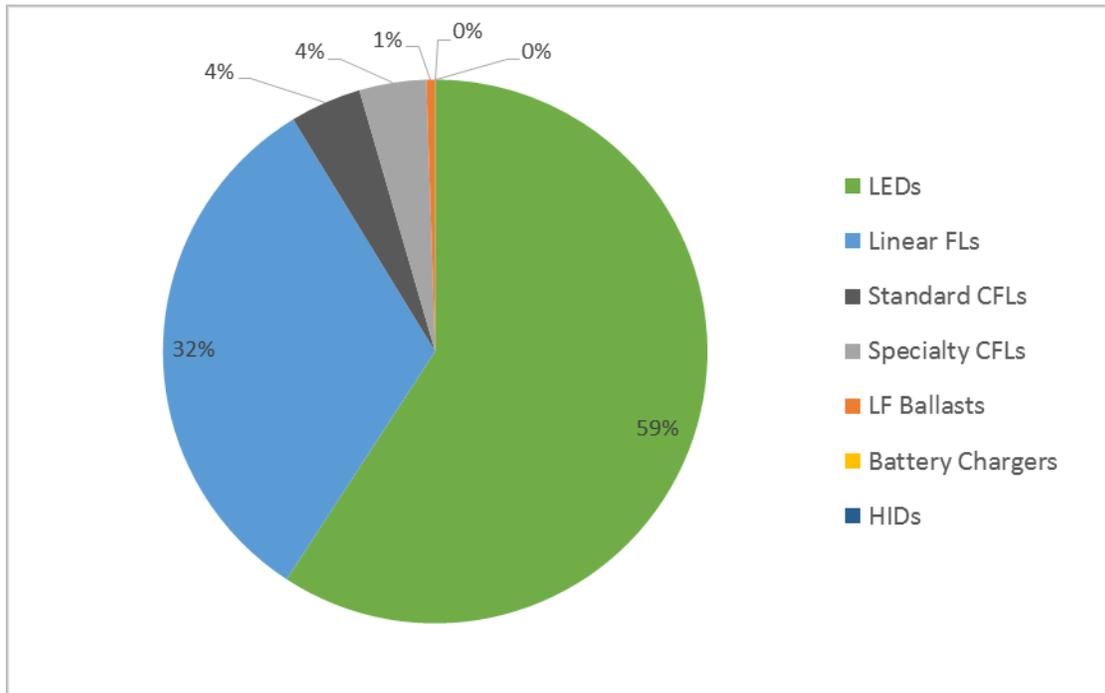
Table 3-3 provides the volume of bulbs incentivized through the BILD Program estimated to have been installed during the PY8 program year. This includes bulbs sold in prior program years and installed in PY8.

Table 3-3. PY8 Installed Volumetric Findings Detail

Program Year	Standard CFLs	Specialty CFLs	LEDs	Linear FLs	HIDs	LF Ballasts	Battery Chargers	Total
PY8 Incentivized Units	N/A	N/A	1,131,992	503,948	N/A	N/A	76	1,636,016
PY8 1st Year Installed Units	N/A	N/A	1,072,590	483,790	N/A	N/A	76	1,556,456
PY6 Carryover Units – installed in PY8	45,009	44,632	1,914	110,158	0	8,828	N/A	210,541
PY7 Carryover Units – installed in PY8	34,624	30,040	37,090	8,706	71	741	N/A	111,272
Total Installed Units in PY8	79,633	74,672	1,111,594	602,654	71	9,569	76	1,878,269

Source: ComEd tracking data and Navigant team analysis.

Figure 3-1. Number of Measures Installed by Type (Including Carryover)



Source: ComEd tracking data and Navigant team analysis.

Table 3-4 displays the number of enrolled and participating distributors and end-users.

Table 3-4. PY8 Enrolled and Participating Distributors and End Users

Program Participants	Enrolled	Participating
Distributors	103	88
End Users	NA	-6,500 – 7,500 ¹⁷

Source: ComEd tracking data and Navigant team analysis.

3.3 Gross Program Impact Parameter Estimates

The EM&V team conducted research to validate and supplement parameters that were not fully specified in the tracking system. Evaluation research verified specialty bulb type classifications (globe, candelabra, PAR30, etc.) and ensured that TRM parameters that vary by bulb type were applied correctly. The evaluation team also applied the residential and non-residential splits for each product type (detailed in Table 3-5). Finally, where possible, the evaluation team assigned building type based on business name and address and applied the building type specific parameters from the TRM. The resulting verified savings parameters used in PY8 that are independent of installation location (residential versus non-residential) are included in Table 3-5 and those parameters that may vary are included in Table 3-6.¹⁸ These tables include both ex ante and verified savings parameter estimates. The differences are explained in the section after the tables.

¹⁷ The exact number of unique end users is unknown due to multiple various name and address combinations for the same end-user in the tracking data.

¹⁸ Values in Table 3-6 reflect the weighted average parameters for all business types.

Table 3-5. Verified Gross Savings Parameters

Gross Savings Input Parameters	Product Type	PY8 Ex Ante Value	PY8 Verified Savings Value	Deemed ‡ or Evaluated?
Program Unit Sales	LED Bulbs	1,045,905	1,045,905	Evaluated
	LED Fixtures	60,790	60,790	Evaluated
	LED Exit Signs	25,297	25,297	Evaluated
	Linear FL	503,948	503,948	Evaluated
	Battery Chargers	76	76	Evaluated
	Carryover Bulbs	321,813	321,813	Evaluated
	Total		1,957,829	1,957,829
Delta Watts	LED Bulbs	51.5	51.8	Deemed
	LED Fixtures	46.2	46.3	Deemed
	LED Exit Signs	19.8	19.8	Deemed
	Linear FL	4.4	4.4	Deemed
	Battery Chargers	309.1	309.1	Deemed
Res/NonRes Split	LED Bulbs, LED Fixtures	0%/100%	4%/96%	Deemed
	Linear FL	0%/100%	1%/99%	Deemed
	LED Exit Signs, Battery Chargers	0%/100%	0%/100%	Deemed

‡ State of Illinois Technical Reference Manual version 4.0 from http://www.ilsag.info/il_trm_version_4.html

Table 3-6. Verified Gross Savings Parameters – Residential vs. Non-Residential

Gross Savings Input Parameters	Product Type	PY8 Ex Ante Value	PY8 Verified Savings Values Res	PY8 Verified Savings Values Non-Res	Deemed ‡ or Evaluated?
Installation Rate	LED Bulbs	95.7%	95.0%	95.7%	Deemed
	LED Fixtures	95.7%	95.0%	95.7%	Deemed
	LED Exit Signs	100.0%	100.0%	100.0%	Deemed
	Linear FL	98.0%	95.0%	98.0%	Deemed
	Battery Chargers	100.0%	100.0%	100.0%	Deemed
Hours of Use	LED Bulbs	3,612	847	3,503	Both*
	LED Fixtures	3,612	891	4,760	Both
	LED Exit Signs	8,766	8,766	8,766	Both
	Linear FL	4,683	891	4,606	Both
	Battery Chargers	8,371	8,371	8,371	Both
Summer Peak CF	LED Bulbs	NR	0.08	0.64	Both
	LED Fixtures	NR	0.09	0.66	Both
	LED Exit Signs	NR	1.00	1.00	Both
	Linear FL	NR	0.09	0.66	Both
	Battery Chargers	NR	0.39	0.39	Both
Winter Peak CF	LED Bulbs	NR	0.12	0.55	Evaluated
	LED Fixtures	NR	0.12	0.55	Evaluated
	LED Exit Signs	NR	1.00	1.00	Evaluated
	Linear FL	NR	0.12	0.54	Evaluated
	Battery Chargers	NR	-	-	Evaluated
Interactive Effects	LED Bulbs	1.31	1.06	1.30	Both
	LED Fixtures	1.31	1.06	1.30	Both
	LED Exit Signs	1.31	1.04	1.31	Both
	Linear FL	1.31	1.06	1.31	Both
	Battery Chargers	NR	NR	NR	Both

‡ State of Illinois Technical Reference Manual version 4.0 from http://www.ilsag.info/il_trm_version_4.html

* A value of "Both" indicates that business-type specific parameters from the TRM were used, but that evaluation activities were necessary to identify business types.

3.3.1 Unit Sales

There were no misclassifications of lamp categories in the tracking system; therefore, there were no differences in unit sales in any lamp category between ex ante and ex post.

3.3.2 Delta Watts

The differences in delta watts between ex ante and ex post were marginal for each of the measure groups. ComEd accurately defined ex ante assignments of baseline and measure wattages, with only small discrepancies for a handful of line items. Average delta watts for each lighting measure group differed by no more than 0.1W between ex ante and ex post. These small differences were due to the

updates of lamp specifications based on the evaluation team's bulb information lookups and a small number of misclassified lamp types.

3.3.3 Installation Rates

ComEd does not define a residential / non-residential split in their ex ante estimates as defined by the IL TRM. Instead, ex ante estimates use only the non-residential installation rates from the IL TRM v4.0. Due to the applied residential / non-residential split, a small portion of the LED bulbs, LED fixtures, and linear fluorescents were subject to a slightly lower residential installation rate for the verification analysis.

3.3.4 Residential/Non-residential Installation Location Split

There were no residential installations for BILD products assumed by ComEd in their tracking system (100 percent non-residential). Evaluators used the IL TRM v4.0 for the ex post verified savings residential / non-residential split values. For LED bulbs and fixtures, the split was 4 percent residential and 96 percent non-residential. For LED exit signs, the split was 100 percent non-residential. For linear fluorescents, the split was 1 percent residential and 99 percent non-residential.

3.3.5 Hours of Use and Interactive Effects

In ComEd's tracking system, there were no residential installations assumed and all end user business types were classified as "Unknown." As mentioned above, the evaluation team used the business name to assign a more accurate business type where possible. This resulted in varying values for hours of use and interactive effects. For energy and demand interactive effects, there were only small differences between ex ante and non-residential ex post values. Residential interactive effects values, which are lower, were applied to a small portion of sales in accordance with the residential / non-residential split. The primary drivers of the realization rates for the lighting measures were the differences in hours of use. For LED bulbs, this resulted in an average non-residential HOU that was three percent lower than ex ante values. For LED fixtures, the ex post non-residential HOU was 31 percent higher than ex ante. For linear fluorescents, the ex post non-residential HOU was two percent lower than ex ante. For battery chargers, three different hours of use values were used based on a Pacific Gas and Electric Company (PG&E) study on this technology and information provided by the end-user. The evaluation team reviewed and accepted these methods and ComEd's workpaper based on the PG&E study.¹⁹ In addition, while residential installations make up a small portion of sales, the residential HOU values for the lighting measures were much lower than their non-residential counterparts.

3.4 Verified Gross Program Impact Results Including Carryover

The resulting total program verified gross savings is 282,451 MWh, 57.4 peak summer MW, and 49.6 peak winter MW as shown in the following table (Table 3-7, all savings contribute to the EEPS portfolio). These saving estimates are based on deemed parameter estimates from the TRM v4.0. The verified gross realization rates shown in the table below are calculated as the proportion of ex ante savings found within the verified savings analysis. ComEd did not provide ex ante savings estimates for gross summer and winter peak MW savings, so no ex ante values or realization rates are presented for those metrics.

The table presents savings for each product type as well as carryover from previous program years and overlap with the SBES program. Additional detail on the carryover savings can be found in Table 3-8.

For the SBES overlap savings, ex post savings values are slightly higher (less negative) than ex ante estimates. Similar to the remainder of the ex post analysis, this difference is due to the assignment of business types for these records. Because SBES is a prescriptive and direct installation program, the installation location is known for these overlap records and those building type specific parameters were used in the ex post calculation. The ex ante calculation for BILD reductions due to SBES overlap used the

¹⁹ See Section 7.3.

same method as the overall BILD program, which was to use the “Unknown” business type parameter values from the TRM.

Table 3-7. PY8 Verified Gross Impact Savings Estimates by Measure Type

	Ex ante Gross MWh Savings	Verified Gross Realization Rate	Verified Gross MWh Savings	Verified Gross Summer Peak MW Savings	Verified Gross Winter Peak MW Savings
Lighting Measures					
LED Lamps	244,030	94%	230,169	48.6	41.9
LED Fixtures	12,731	126%	16,039	2.6	2.2
LED Exit Signs	5,754	100%	5,734	0.8	0.8
Linear Fluorescent Lamps	13,346	98%	13,080	2.1	1.8
Non-Lighting Measures					
Battery Chargers	201	100%	201	0.03	-
Carryover	31,002	100%	31,002	6.3	5.3
SBES Overlap	-14,710	94%	-13,773	-3.1	-2.4
Total	292,353	97%	282,451	57.4	49.6

Source: ComEd tracking data and Navigant team analysis.

The BILD program is also able to claim energy and demand savings from program bulbs purchased during PY6 and PY7, but not installed (i.e., used by the end user) until the current program year. Table 3-8 provides additional details of estimates of the verified gross savings resulting from these carryover bulbs.

Table 3-8. PY8 Verified Gross Impact Savings from PY6 and PY7 Carryover Bulbs

	PY6 Program	PY7 Program	Total
Verified Gross MWh Savings	15,416	15,586	31,002
Verified Gross Summer Peak MW Savings	3.1	3.3	6.3
Verified Gross Winter Peak MW Savings	2.6	2.7	5.3

Source: ComEd tracking data and Navigant team analysis.

4. NET IMPACT EVALUATION

SAG determined²⁰ that the NTG values for this program should be deemed prospectively and used to calculate verified net savings. Table 4-1 and Table 4-2 below show the deemed NTG values and the PY8 verified net energy and demand (summer and winter coincident peak) savings were calculated by multiplying the verified gross savings estimates by a net-to-gross ratio (NTGR). The NTGR estimates applied to calculate verified net savings were 0.77 for LEDs, 0.61 for linear fluorescents, and 0.77 for all other products, as specified by SAG. The tables below show the deemed NTG values and the PY8 verified net savings (all savings attributed to the EEPS portfolio). The overall NTG ratio was calculated as the overall ratio of verified net savings to verified gross savings and represents the savings weighted average NTG across all measures. As with gross impacts, line items for carryover savings and SBES overlap deductions are included. Additional detail on carryover impacts can be found in Table 4-3.

Table 4-1. PY8 Verified Net MWh Impact Savings Estimates by Measure Type

	Ex ante Gross MWh Savings	Verified Gross Realization Rate	Verified Gross MWh Savings	NTG Ratio	Verified Net MWh Savings
Lighting Measures					
LED Lamps	244,030	94%	230,169	0.77	177,230
LED Fixtures	12,731	126%	16,039	0.77	12,350
LED Exit Signs	5,754	100%	5,734	0.77	4,415
Linear Fluorescent Lamps	13,346	98%	13,080	0.61	7,979
Non-Lighting Measures					
Battery Chargers	201	100%	201	0.77	155
Carryover	31,002	100%	31,002	0.64	19,687
SBES Overlap	-14,710	94%	-13,773	0.77	-10,605
Total	292,353	97%	282,451	0.75[†]	211,210

Source: ComEd tracking data and Navigant team analysis.

† An overall savings-weighted ratio for all measure types based on deemed values - the actual weighted NTGR is 0.747776.

Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

²⁰ Source: ComEd PY5-PY6 Proposal Comparisons with SAG.xls, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

Table 4-2. PY8 Verified Net Peak MW Impact Savings Estimates by Measure Type

	Verified Gross Summer Peak MW Savings	Verified Gross Winter Peak MW Savings	NTG Ratio	Verified Net Summer Peak MW Savings	Verified Net Winter Peak MW Savings
Lighting Measures					
LED Lamps	48.6	41.9	0.77	37.4	32.3
LED Fixtures	2.6	2.2	0.77	2.0	1.7
LED Exit Signs	0.8	0.8	0.77	0.6	0.6
Linear Fluorescent Lamps	2.1	1.8	0.61	1.3	1.1
Non-Lighting Measures					
Battery Chargers	0.03	-	0.77	0.02	-
Carryover	6.3	5.3	0.64	4.0	3.4
SBES Overlap	-3.1	-2.4	0.77	-2.4	-1.8
Total	57.4	49.6	0.75[†]	43.0	37.2

Source: ComEd tracking data and Navigant team analysis.

† An overall savings-weighted ratio for all measure types based on deemed values - the actual weighted NTGR is 0.747776.

Source: ComEd_NTG_History_and_PY8_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

The BILD program is able to claim energy and demand savings from program bulbs purchased during PY6 and PY7 but not installed (i.e., used by the consumer) until the current program year. Table 4-3 provides additional details of estimates of the Verified Net savings resulting from these carryover bulbs.

Table 4-3. PY8 Verified Net Impact Savings from PY6 and PY7 Carryover Bulbs

	PY6 Program	PY7 Program	Total
Verified Net MWh Savings	9,712	9,975	19,687
Verified Net Summer Peak MW Savings	1.9	2.1	4.0
Verified Net Winter Peak MW Savings	1.6	1.8	3.4

Source: ComEd tracking data and Navigant team analysis.

4.1 PY9 Carryover Savings Estimate

Calculation of the PY9 carryover estimate relies upon the IL TRM v4.0 and the PY7 and PY8 reports. At this time all of these data sources are available and thus it is possible to estimate the gross and net carryover energy savings that the evaluation team recommends for PY8. The energy and demand savings from these PY7 and PY8 late installed bulbs are calculated based on the following parameters:

- Delta Watts – Verified savings estimate from the year of installation (source: IL TRM v5.0).
- Res/Non-Res Split - Verified savings estimate from the year of purchase (source: IL TRM v3.0 and IL TRM v4.0).
- HOU and Peak CF – Verified savings estimate from the year of installation (source: IL TRM v5.0).
- Energy and Demand IE – Verified savings estimate from the year of installation (source: IL TRM v5.0).
- Installation Rate - Verified savings estimate from the year of purchase (source: IL TRM v3.0 and IL TRM v4.0).
- NTGR – Evaluation research from the year of purchase (source: PY7 and PY8 Reports).

Table 4-4 shows that in PY9 124,748 bulbs, purchased during either PY7 or PY8, are expected to be installed within ComEd service territory. The table provides both the gross and net energy and demand savings from these bulbs. The total net energy savings is estimated to be 11,007 MWh, 2.2 summer peak MW, and 2.1 winter peak MW, which will be counted in PY9 as BILD lighting program carryover savings.

Table 4-4. PY9 Verified Savings Carryover Estimate

PY9 Verified Savings Carryover Estimate	PY7 Bulbs	PY8 Bulbs	PY9 Carryover
Carryover Bulbs Installed in PY9	99,282	25,466	124,748
Average Delta Watts	31.6	40.8	n/a
Average Daily Hours of Use	8.8	9.5	n/a
Summer Peak Load Coincidence Factor	0.51	0.57	n/a
Winter Peak Load Coincidence Factor	0.49	0.54	n/a
Gross kWh Impact per unit	99.4	142.7	n/a
Gross kW Impact per unit	0.03	0.04	n/a
Installation Rate	100%	100%	n/a
Energy Interactive Effects	1.22	1.09	n/a
Demand Interactive Effects	1.34	1.35	n/a
Carryover Gross MWh Savings	12,039	3,959	15,998
Carryover Gross MW Savings	3.5	1.0	4.5
Carryover Gross Summer Peak MW Savings	2.4	0.8	3.2
Carryover Gross Winter Peak MW Savings	2.3	0.8	3.0
Net-to-Gross Ratio	0.66	0.74	0.69
Carryover Net MWh Savings	7,973	3,034	11,007
Carryover Net MW Savings	2.3	0.8	3.1
Carryover Net Summer Peak MW Savings	1.6	0.6	2.2
Carryover Net Winter Peak MW Savings	1.5	0.6	2.1

Source: ComEd tracking data and Navigant team analysis.

5. PROCESS EVALUATION

Midstream incentive delivery mechanisms are beneficial in part because they reduce the administrative burden of processing thousands of downstream rebate applications. Similarly, because rebates are submitted by the distributor, all burden is removed from the end-user. However, a lack of end-user information has been a consistent challenge for evaluation of this program and is the main focus of this process evaluation. Beginning in November 2015, ComEd asked distributors to capture additional end-user information in the rebate submissions. The process evaluation included a web survey fielded to all program distributors and explores how distributors are collecting, organizing, and submitting the required information. The analysis seeks to determine if this process is too burdensome for some distributors and to identify best practices for streamlining this activity in future program years. Similarly, distributors have indicated that several other program aspects have been challenging, including changing incentive levels, copays, and funding periods. These issues are also explored to identify areas for program improvement. Additionally, several typical process topics such as motivations for program participation and overall program satisfaction were explored. Results for these topics can be found in the appendix.

5.1 Program Processes – Customer Information

Beginning in November 2015, ComEd has asked BILD distributors to provide customer contact information and the business name and address where the lamps were to be installed. After this requirement was instituted, almost two-thirds (62.7 percent) of distributors were able to collect information for all BILD transactions. Of the remaining third, the large majority of these distributors indicated that they were not able to collect contact information for 5 to 30 percent of transactions (though four distributors noted that they were unable to collect contact information for 90 to 100 percent of transactions). The primary reasons why distributors were not able to capture all BILD transactions were that the customer did not want to provide it (61 percent) or the customer was a contractor that did not know where the lamps would be installed (21 percent).

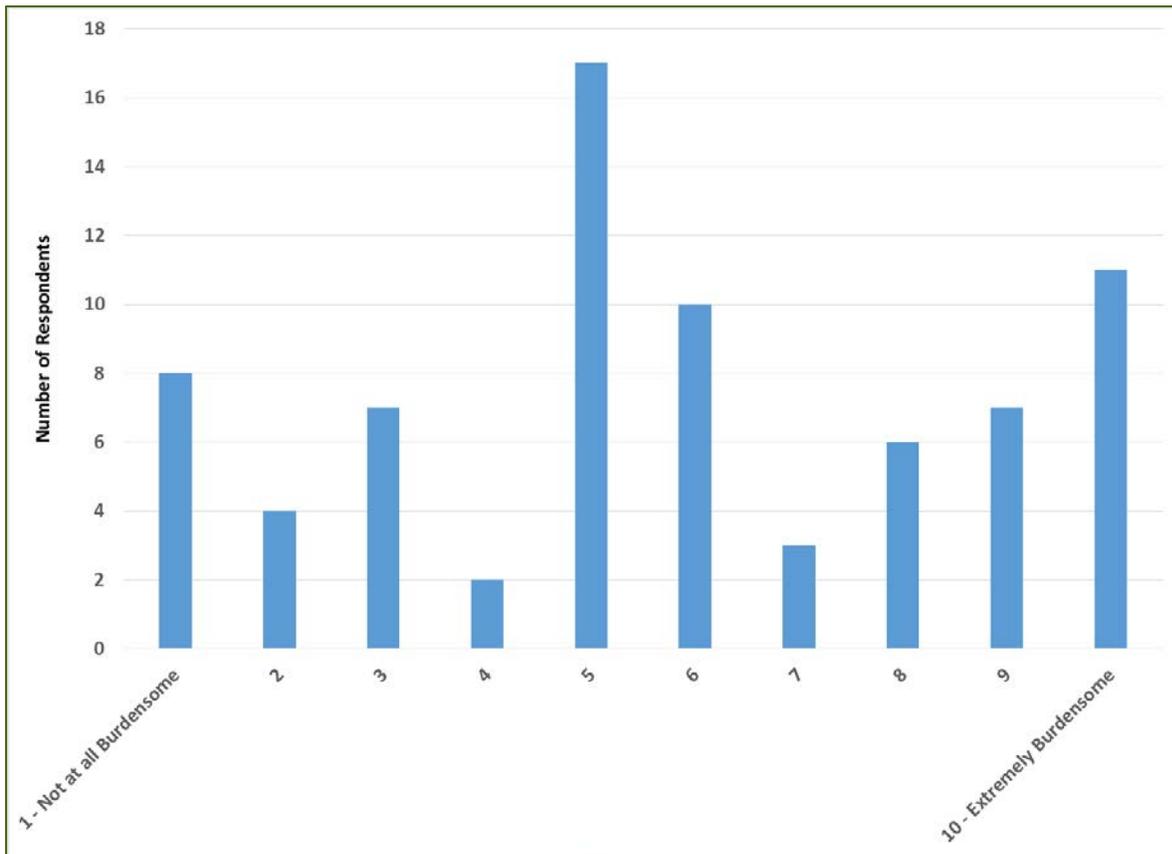
There was also a requirement in PY8 that distributors had to submit incentive requests and customer contact information within 15 days of the transaction. Over half of the respondents felt that this was a sufficient amount of time (55 percent) while those who did not overwhelmingly said that 30 days would be an adequate amount of time. Several distributors indicated that they would prefer monthly submissions over the 15-day window because it would ease their administrative burden.

Distributors were also asked to rate the difficulty of the BILD transaction reporting process from 1 to 10, with 10 being extremely burdensome. The responses were relatively evenly split between the ratings, with an overall average of 5.7. Those who claimed the difficulty as an 8, 9, or 10 tended to be medium or large distributors (defined as being in the top two terciles of program bulb sales). The primary difficulty was collecting the customer contact information, such as email addresses and zip codes. Tying the distributor bonus to the successful collection of customer contact information could potentially encourage extra effort to be made. Also cited were the manual process and the frequency of reporting. More than half of the respondents use Quickbooks, Excel, or both in their recording and reporting, while custom or in-house software was the third most popular choice. There does not appear to be a substantial correlation between a distributor's invoicing/CRM software and perceived burden of BILD transaction reporting. In other words, the evaluation revealed instances where two firms were using Quickbooks, for example, and one respondent indicated a high level of burden while the other indicated that it was very straightforward. Sharing of best practices, processes, and techniques between distributors, especially those with similar characteristics (e.g. sales volume, national account distributors vs. boutique firms), could be beneficial for alleviating the difficulties that may arise from BILD transaction reporting.

5.2 Changing Incentive Levels and Copays

In PY8 and previous program years, it has been necessary to adjust incentive amounts for certain products in the middle of the program year due to price shifts in the LED market and overall availability of BILD incentive funding. Distributors were asked to rate the difficulty in adapting to the changing incentive levels in the middle of the program year. Figure 5-1 shows the distribution of ratings. The average rating was 5.8, indicating that it was somewhat burdensome for distributors to update incentive levels. However, responses were relatively trimodal with ratings tending toward the extremes (1 or 10) or the middle (5). Those who say that the updates are relatively easy tend to be smaller distributors, citing the provided BILD Excel files that are easily linked through UPC codes. Those who say that the updates are burdensome tend to be larger distributors, citing the difficulty in changing marketing and price quotes to customers, and the manual process necessary to make the updates in their systems. Going forward, most distributors say that more forewarning and a longer grace period would be helpful in ameliorating the issues associated with changing incentives in the middle of a program year. As with the transaction reporting, sharing of information between similar distributors on how to effectively deal with changing incentive levels in their sales systems could be beneficial.

Figure 5-1. Distributor Difficulty Adapting to Changing Incentive Levels

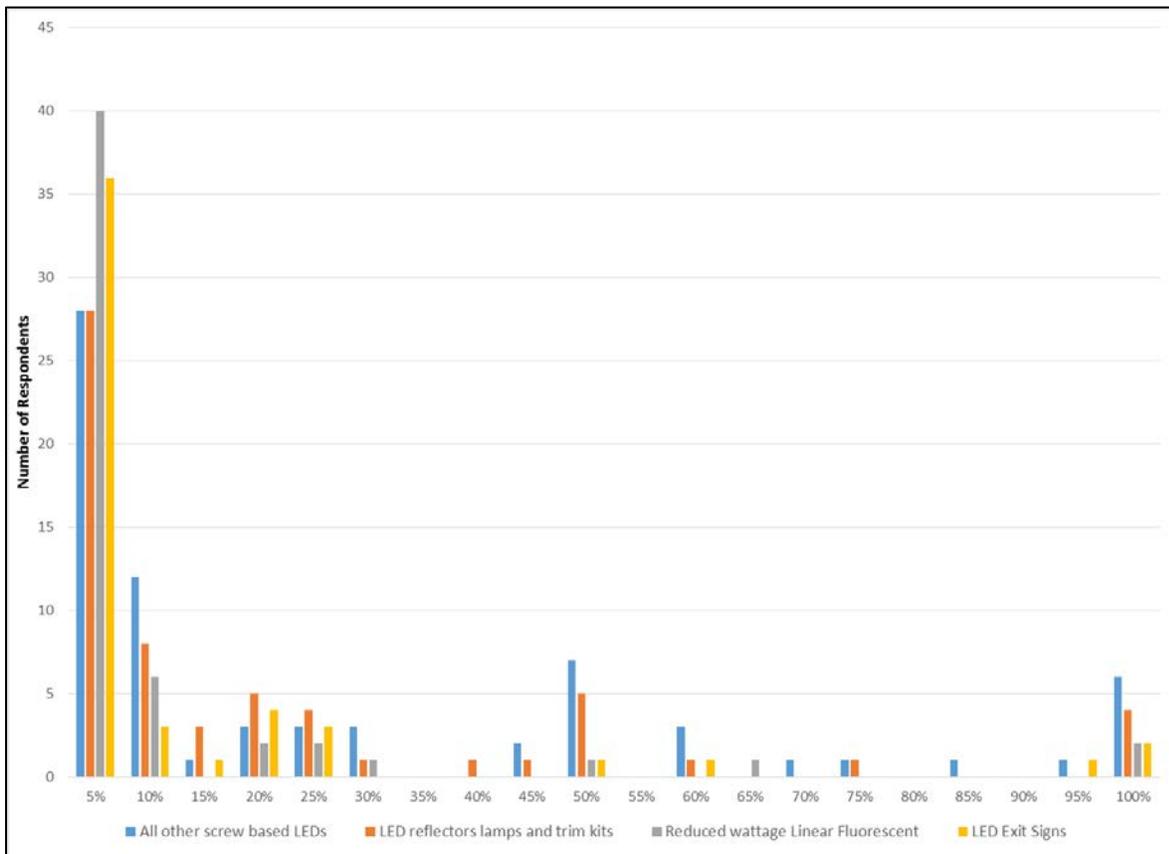


Source: Navigant Evaluation Team Analysis of Distributor Survey Data

In November 2015, the BILD program instituted a new minimum customer co-pay of 50% of each lamp type’s incentive amount for all program transactions. Distributors were asked to estimate the percentage of sales for each lamp type category that triggered the minimum copay [for example, for an LED reflector, how often was the final “sale” price less than \$12.00 (\$8.00 incentive + \$4.00 minimum co-pay)?]. Figure 5-2 shows the distribution of lamp sales that were subject to minimum copays. The vast majority of respondents claimed that a minimal amount of sales in each category (0-5%) triggered the minimum

copays. Reduced-wattage linear fluorescent lamps and LED exit signs were reported to be subject to minimum copays less frequently than the other LED lamp types (screw-based and reflectors). There were several distributors who claimed that 100% of their BILD transactions for a given lamp category triggered the minimum co-pay. These distributors had small/medium volumes of sales. Most of the participants thought that the minimum co-pay was beneficial to the program, stating that it evens the playing field for distributors and increases customer interest in the bulbs, by legitimizing the investment in energy efficiency. This is true to the extent that lower-quality and/or low-cost products exist on the BILD Approved Products List (APL). However, ComEd should maintain a close eye on this metric. A large percentage of lamp sales triggering the minimum customer co-pay would indicate that incentive levels need to be revisited or certain low-quality products should be removed from the APL. In fact, one distributor noted that, “(w)ith the rapid updates in technology, the costs are falling as well and sometimes the 50% co-pay to reach the full incentive creates a price that may not be market level.” Another distributor said that “(i)n my experience it’s not in the customers best interest. There are many bulbs I can sell for less than the 50% co-pay.” Several distributors also noted that the minimum co-pay put them at a disadvantage for some lamps because their customers could get the lamps cheaper at big box stores.

Figure 5-2. Percentage of Lamp Types Sold Triggering Minimum Copay



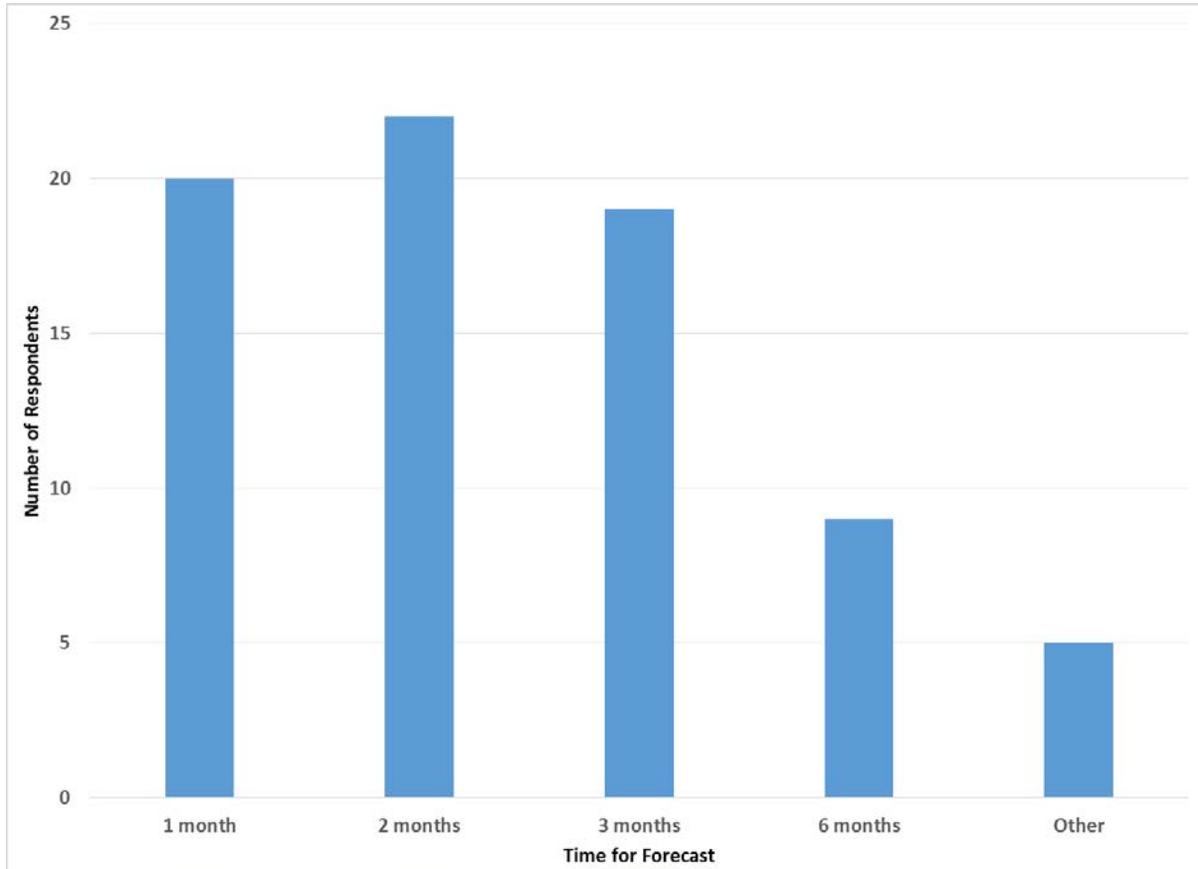
Source: Navigant Evaluation Team Analysis of Distributor Survey Data

5.3 Program Funding Periods

In PY8, there were 30-day funding periods instituted between July and November, and 45-day to 60-day funding periods defined for the remainder of the program year. To help inform the design of additional funding cycles, distributors were asked over what time period they could accurately forecast (within 10%) their need for BILD funds. Figure 5-3 presents the distribution of responses. Over 80% of distributors

estimate that they can forecast their need for BILD funding for one to three months into the future. Other distributors claim that it is difficult to provide forecasts within 10% for any given time frame.

Figure 5-3. Distributor Time Period Forecast for BILD Funds



Source: Navigant Evaluation Team Analysis of Distributor Survey Data

6. FINDINGS AND RECOMMENDATIONS

This section summarizes the full set of key impact and process findings and recommendations.

Program Tracking Data Review

Finding 1. Overall, the tracking data was very accurate in terms of bulb information and application of the IL TRM v4.0. The bulb information provided (wattages, center beam candlepower (CBCP), beam angle, and lamp diameter) was complete.

Recommendation 1. To accurately determine delta watts for directional LEDs, the bulb information should include the specific specialty bulb type (PAR38, R20, etc.) used to determine ex ante savings values.

Verified Gross Impacts and Realization Rate

Finding 2. The PY8 gross verified energy savings were estimated to be 282,451 MWh. LEDs comprised 89 percent of program energy savings. The gross realization rate on this savings estimate is 97 percent. Verified savings were lower than ComEd ex ante savings primarily due to differences in hours of use by business type as specified in the IL TRM v4.0, and because ex ante estimates do not include a residential / nonresidential split. The IL TRM specifies a split of 4 percent residential and 96 percent commercial for LED lamps and one percent / 99 percent for linear fluorescent lamps. Commercial installations have higher deemed hours of use and interactive effects values than residential installations, so attributing savings to residential installs has a downward impact on savings.

Recommendation 2. ComEd could improve their ex ante savings estimates by establishing preliminary business types for end-users where possible and applying the associated parameters from the TRM. Estimates could also be improved by applying the deemed residential and nonresidential splits and the other appropriate deemed residential parameters (hours of use, interactive effects, etc.).

Finding 3. The PY8 gross verified summer peak demand reduction was 57.4 MW and winter peak demand savings were 49.6 MW. The net verified summer and winter peak demand reductions were 43.0 MW and 37.2 MW, respectively. As in PY7, the largest portion of these savings are due to LED sales, which comprised 93 percent of verified net peak demand savings.

Verified Net Impacts

Finding 4. The overall unit sales-weighted net-to-gross ratio (NTGR) found in this evaluation was 0.75 based on deemed values.²¹ The BILD and BPD programs accomplished 211,210 MWh of net energy savings, 43.0 MW of summer peak demand reduction, and 37.2 MW of winter peak demand reductions. Over 91 percent of these energy savings were from LED lamps, fixtures, and exit signs while only four percent were from linear fluorescents. Verified summer and winter peak demand savings were also dominated by LEDs (approximately 93 percent).

Program Volumetric Findings.

Finding 5. The total number of units sold during the PY8 BILD Program was 1,636,016, which is a 35 percent decrease from the total units sold in PY7. This decrease was largely due to the removal of CFLs, LF ballasts, and HIDs from the program. Sixty-nine percent of units sold were LEDs,²² 31 percent were linear fluorescents, and the remaining fraction was battery chargers. Compared to PY7, the total sales of LEDs increased by two percent and total sales of linear fluorescent lamps decreased by 36 percent. The evaluation does not know what caused the large drop in reduced wattage LFs in PY8. However, as part of the distributor survey, over 70 percent of respondents said that they sold high-efficiency lamps in PY8 that

²¹ Deemed values. Source: ComEd_NTG_History_and_PY7_Recommendation_2014-02-28_Final_EMV_Recommendations.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

²² Including LED Fixtures and exit signs.

did not receive BILD discounts. Approximately 47 percent of these high-efficiency, non-discounted lamps were reduced wattage linear fluorescents.

Recommendation 3. The evaluation recommends that ComEd check with BILD distributors to identify what types of RW-LFs are being sold without an incentive and potentially add those lamps to the Approved Product List.

Process Evaluation.

Finding 6. In November of PY8, ComEd instituted the requirement that BILD distributors provide customer contact information and the business name and address where the lamps were to be installed. After this requirement was instituted, almost two-thirds (62.7 percent) of distributors were able to collect information for all BILD transactions. The primary reasons why distributors were not able to capture all BILD transactions were that the customer did not want to provide it (61 percent) or the customer was a contractor that did not know where the lamps would be installed (21 percent).

Recommendation 4. The evaluation team has recommended that ComEd collect the purchaser contact information rather than the end-user contact information, which should alleviate the issue surrounding contractor purchases. Tying the distributor bonus to the successful collection of customer contact information could potentially encourage extra effort to be made for the remaining transactions.

Finding 7. The program had a requirement in PY8 that distributors had to submit incentive requests and customer contact information within 15 days of transaction. Over half of the respondents felt that this was a sufficient amount of time (55%) while those who did not overwhelmingly said that 30 days would be an adequate amount of time. Several distributors indicated that they would prefer monthly submissions over the 15-day window because it would ease their administrative burden. Additionally, many distributors reported that the transaction reporting process was labor intensive (manual process) and that transaction reports were required too frequently. There does not appear to be a substantial correlation between a distributor's invoicing/CRM software and perceived burden of BILD transaction reporting. In other words, the evaluation revealed instances where two firms were using Quickbooks, for example, and one respondent indicated a high level of burden while the other indicated that it was very straightforward. Several distributors indicated that moving the transaction reporting system to an online web portal may be beneficial.

Recommendation 5. The evaluation recommends that the reporting period be extended to 30 days. Additionally, to facilitate streamlined transaction reporting, the evaluation team recommends that ComEd hold a distributor workshop to share best practices, processes, and techniques for managing incentive reporting.

Finding 8. In PY8 and previous program years, the program has had to adjust incentive amounts for certain products in the middle of the program year due to price shifts in the LED market and overall availability of BILD incentive funding. Distributors were asked how burdensome the changing incentive levels were and responses ranged from not burdensome to very burdensome. Those who say that the updates are relatively easy tend to be smaller distributors, citing the provided BILD Excel files that are easily linked through UPC codes. Those who say that the updates are burdensome tend to be larger distributors, citing the difficulty in changing marketing and price quotes to customers, and the manual process necessary to make the updates in their systems. Going forward, most distributors say that more forewarning and a longer grace period would be helpful in ameliorating the issues associated with changing incentives in the middle of a program year.

Recommendation 6. The evaluation recommends that ComEd provide at least 30 days' notice prior to any incentive adjustments taking effect. This would allow for 60 days from the time incentive changes are announced to the time the first transaction report must be submitted where incentive updates are reflected.

Finding 9. In November 2015, the BILD program instituted a new minimum customer co-pay of 50% of each lamp type's incentive amount for all program transactions. The vast majority of distributors claimed that a minimal amount of sales in each category (0-5%) triggered the minimum copays, but there were several distributors who claimed that 100% of their BILD transactions for a given lamp category triggered the minimum copay. Most of the participants thought that the minimum copay was beneficial to the program, stating that it evens the playing field for distributors and increases customer interest in the bulbs, by legitimizing the investment in energy efficiency. However, due to rapidly declining costs for LEDs, the co-pay was higher than market costs for some lamps, which is not beneficial to the program.

Recommendation 7. ComEd should maintain a close eye on this metric. A large percentage of lamp sales triggering the minimum customer co-pay would indicate that market prices have dropped and that incentive levels need to be revisited or certain low-quality products should be removed from the APL.

Finding 10. In PY8, the program instituted 30-day funding periods between July and November, and 45-day to 60-day funding periods for the remainder of the program year. To help inform the design of additional funding cycles, the evaluation asked distributors over what time period they could accurately forecast (within 10%) their need for BILD funds. Over 80% of distributors estimate that they can forecast their need for BILD funding for 1 to 3 months into the future. Notably, smaller distributors have more difficulty with short "funding periods" because they do not have enough consistent volume to ensure that their forecasted incentive amounts will actually be used.

Recommendation 8. The evaluation recommends that ComEd require program distributors to forecast their need for incentives 90 days in advance, which captures the time period over which the majority of distributors feel they can accurately forecast their need for funding.

7. APPENDIX

7.1 Detailed Process Findings

The process evaluation of the PY8 BILD program focused primarily on resolving some of the inherent challenges encountered when evaluating a midstream program, such as collecting purchaser and end-user contact information. It also included an examination of other challenges consistently faced by program distributors including changing incentive levels, copays, and funding periods. The results relating to those topics are covered in Chapter 5. The content presented below includes additional information relating to the process evaluation, including data collection, lamp sales distributions, reasons for program participation, and overall program satisfaction.

7.1.1 Distributor Web Survey Disposition

In PY8, web surveys were fielded to all active program distributors. A total of 75 participating distributors completed surveys, who collectively sold 81 percent of all LEDs, 96 percent of all LED Exit Signs, and 90 percent of all linear fluorescent lamps sold through the program in PY8. Table 7-1 shows the disposition of the distributor web survey.

Table 7-1. Distributor Web Survey Disposition

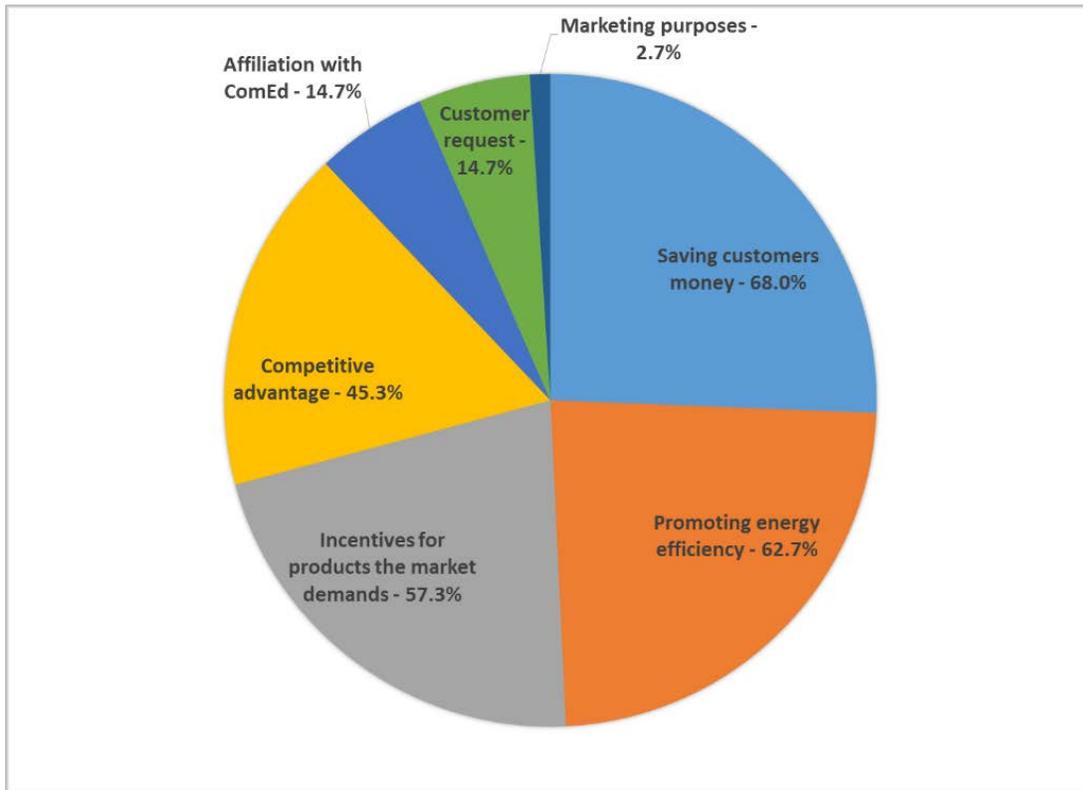
Web Survey Disposition	Distributor Survey	Percent
Sample Pulled	103	100%
Completed Surveys	75	73%
Invalid E-mail	2	2%
Opted Out	3	3%
Partial Completes	6	6%
No Response	17	17%

Source: Navigant team analysis of Distributor Survey Data.

7.1.2 Program Participation

Of the distributors who completed the survey, the average tenure in the BILD program was 3.6 years. The distributors also provided their primary reasons for participating in the program. The most popular reasons were saving customers money and promoting energy efficiency. Figure 7-1 shows the distribution of reasons given.

Figure 7-1. Primary Reasons for Participating in BILD

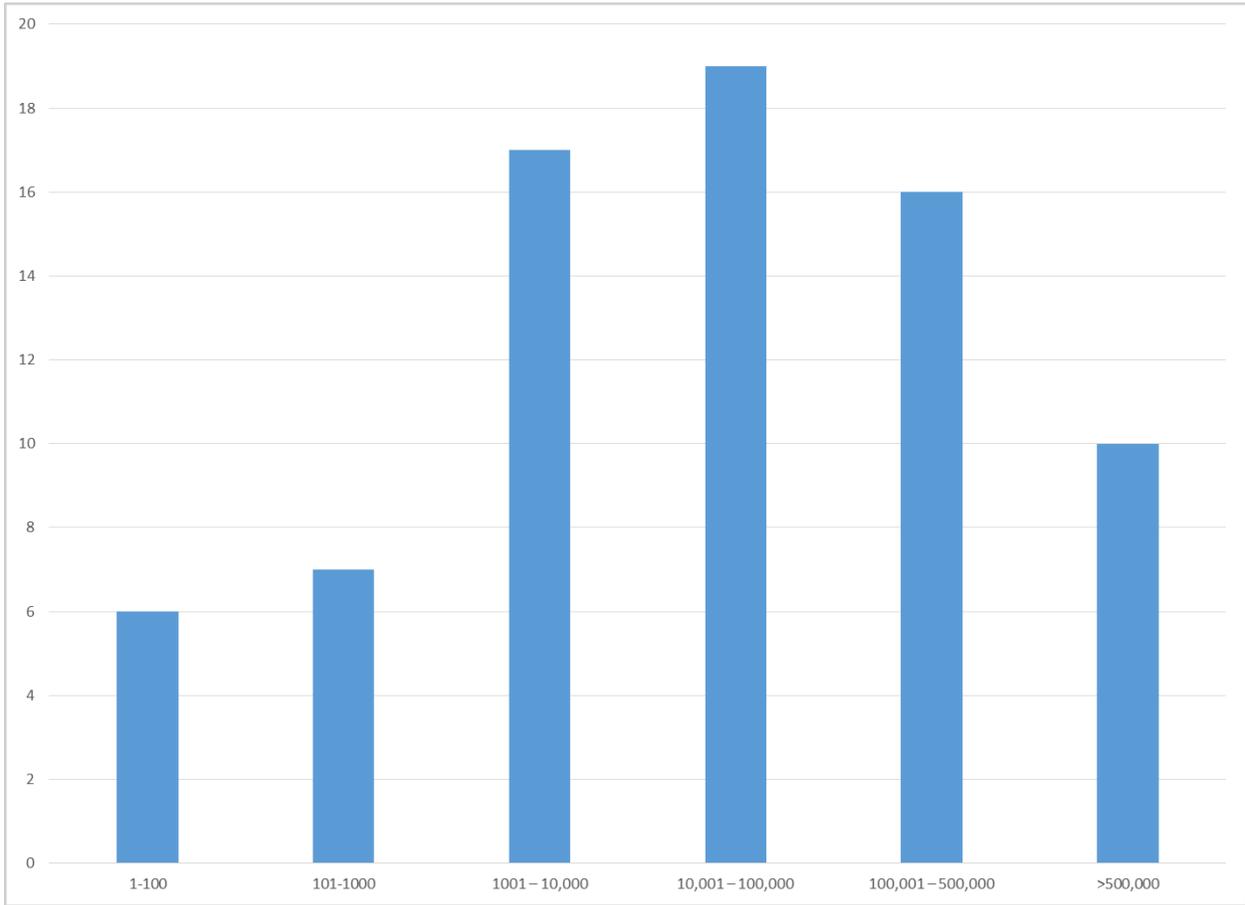


Source: Navigant Evaluation Team Analysis of Distributor Survey Data

7.1.3 Lamp Sales

Distributors self-reported an approximate sales volume of all lamps (program and non-program) sold in PY8. Over half of respondents indicated that they sold over 10,000 bulbs in the program year. Figure 2 shows the number of distributors reporting total lamp sales in each volumetric bucket.

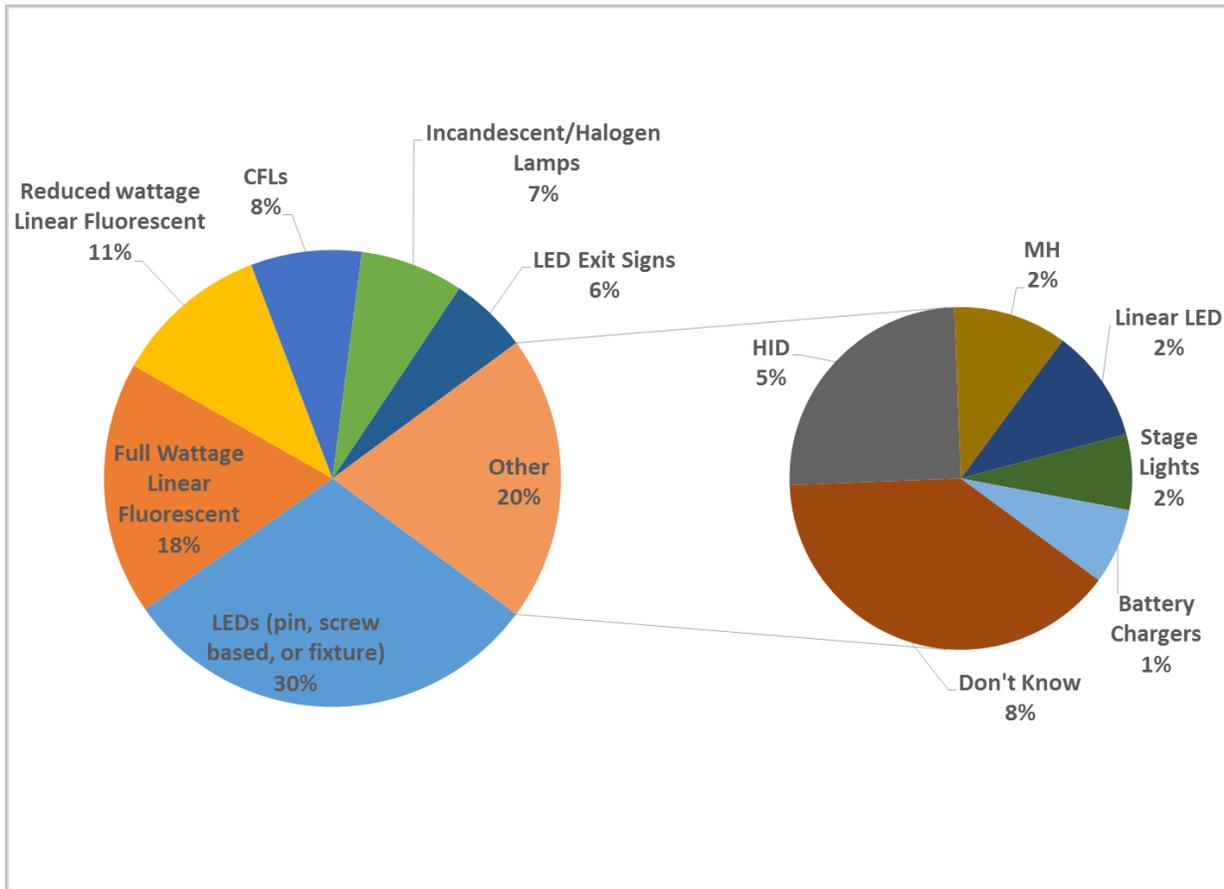
Figure 7-2. Distributor Total Lamp Sales Volumetric Distribution (Program and Non-program)



Source: Navigant Evaluation Team Analysis of Distributor Survey Data

The respondents also characterized the types of lamps sold in PY8 (all program and non-program). LEDs made up over 40 percent of each individual distributor’s sales on average. CFLs and incandescent lamps were approximately equal in distribution, comprising about 10 percent of distributors’ lamp sales on average. Figure 7-3 shows the relative proportions of each of the lamp types. The “Other” category is mainly comprised of HIDs. Linear LEDs do not make up a large portion of this category but are often requested as a technology to be added to the BILD products list.

Figure 7-3. Distributor Total Lamp Type Sales Distribution (Program and Non-Program)

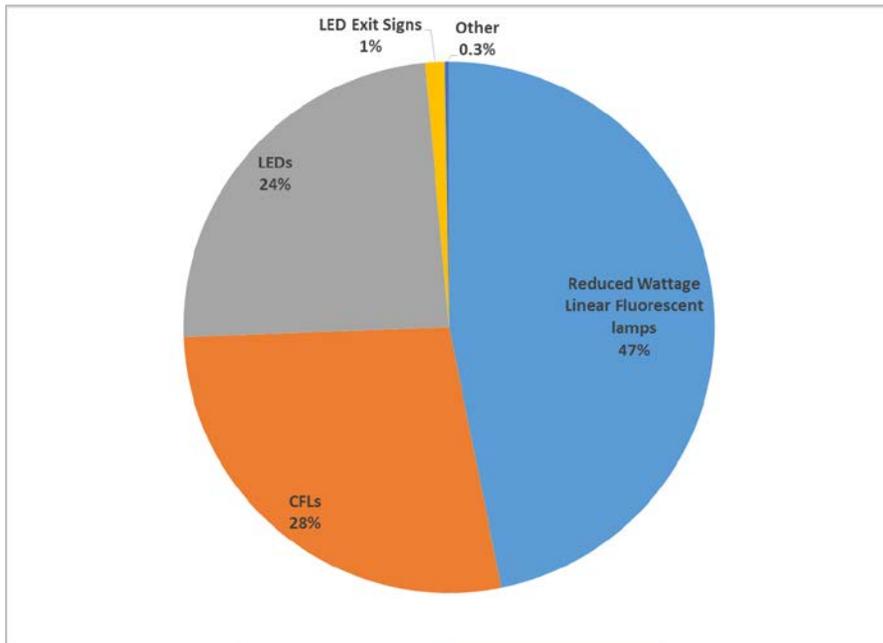


Source: Navigant Evaluation Team Analysis of Distributor Survey Data

Distributors seem to be very involved in helping customers determine which lamps to purchase. On a scale of 1 to 5, with 5 being very involved, respondents gave an average rating of 4.25. Eighty-seven percent of respondents said that they always or usually promoted high-efficiency lamps over the full wattage alternatives. The exceptions to this were usually specific to the architectural/engineering needs of specific projects. The primary sales tactics used to convince customers to switch to energy efficient lighting are emphasizing annual bill savings and energy reduction.

Over 70 percent of distributors said that they sold high-efficiency lamps in PY8 that did not receive BILD discounts. Figure 7-4 shows the distribution of these lamp types, almost half of which are comprised of reduced wattage linear fluorescents. The most common reasons that these lamps did not receive BILD discounts was that the end user was not eligible for participation in BILD or the lamps requested were not qualified. The average volume of non-qualified lamps sold per distributor was approximately 10,000. The majority of the distributors who sold non-discounted bulbs indicated that the BILD program had either minimal or no effect on their sales of any high-efficiency non-program bulbs, which indicates low program spillover.

Figure 7-4. PY8 Distribution of Efficient Lamps Sold Not Receiving a BILD Discount



Source: Navigant Evaluation Team Analysis of Distributor Survey Data

7.1.4 Program Satisfaction

Distributors were also given an opportunity to voice any additional challenges experienced in the program. There were challenges voiced that stemmed from aspects previously addressed in the survey, including the burden of inputting information, planning around incentive changes, and customers wanting additional products added to the APL. Several other interesting challenges were mentioned. One distributor claimed that there were several customers that purchased from them and proceeded to open branches of their own business to act as “distributors,” purchasing products through these branches and selling to themselves to take advantage of BILD discounts. Another distributor stated that it is difficult to be a smaller player and develop direct purchasing relationships with vendors. Also, smaller distributors have more difficulty with short “funding periods” because they do not have enough consistent volume to ensure that their forecasted incentive amounts will actually be used.

Lastly, distributors offered suggestions to improve the BILD program, including changing the distributor scope in terms of end-users, including more lamp types, improving the reporting timelines, and simplifying the transaction reporting process. As mentioned previously, several distributors had formatting and general usability issues surrounding the Excel transaction reports. They indicated that one potential solution could be an online portal where all transactions would be submitted. Key functionality for this web portal would include tracking features for all current program year transactions such as remaining budget and current status (in review, paid, discrepancy, etc.).

7.2 TRM Recommendations

There was no evaluation research done in PY8 to support updates to the TRM.

7.3 Attachments

7.3.1 Distributor Interview Instrument

PY8 ComEd Business Instant Lighting Discounts Program Distributor Interview Instrument

Email to each Distributor

Hello. You are receiving this email because your organization is participating in ComEd's Business Instant Lighting Discounts program, also known as the BILD program. As specified in the BILD program participation agreement, your organization agreed to take part in a survey that will ensure the continued success of the BILD program. Itron, Inc. is fielding this online survey on behalf of ComEd as part of the evaluation of the BILD program.

The purpose of the survey is to learn about your company's experience with the BILD program and to better understand how program distributors are collecting, organizing, and submitting the transaction information required by the program. ComEd, the BILD program implementers, and the program evaluation team understand that some program requirements may be burdensome and are seeking information to help us minimize the burden to you while still collecting the information we require to evaluate and improve the program. BILD distributors are the backbone of this program, and your feedback is critical to future program updates. If you are not the person most knowledgeable about your organization's participation in ComEd's BILD program, please direct us to the correct contact by emailing us at George.Jiang@itron.com. The survey should take less than 20 minutes and all information that is provided will remain strictly confidential. Based on the information you provide, you may be selected for a brief follow-up phone interview.

Your responses to this survey should be reflective of the most recent program year, which ran from **June 1st, 2015 through the present**.

If you have any questions about this survey please contact George Jiang (BILD Program Evaluator) at 858-724-2673, Sharon Madigan (BILD Program Manager) at 630-437-4638, or Steven McVoy (DNV GL Program Implementer) at 224-523-4791.

Please click on the link below to be directed to the web survey. We kindly request that you complete the survey by May 31st, 2016.

[LINK](#)

Thank you for your timely assistance with this important BILD survey.
George Jiang

Web Survey



**BILD PROGRAM
LIGHTING INCENTIVES**

Welcome to the ComEd Business Instant Lighting Discounts Trade Ally Survey. Please remember that all responses should be specific to the most recent BILD program year, which ran from June 1st, 2015 to the present. The survey should take less than 20 minutes, but if you are not able to finish in one session, pressing the “Exit” button will save your progress. Simply return to the web address provided to continue.

Program Participation

1. What were the primary reasons your organization decided to participate in ComEd’s Business Instant Lighting Discounts (BILD) program? *Please select up to three.*
 1. Incentives for products the market demands
 2. Affiliation with ComEd
 3. Marketing purposes
 4. Competitive advantage
 5. Customer request
 6. Promoting energy efficiency
 7. Saving customers money
 0. Other, please specify

2. How many years has your organization participated in the BILD program (up through and including the current program year). [Specify number of years – drop down]

Distributor Lamp Sales

3. Please approximate the total volume (unit sales) of lamps (incandescent/halogen, CFLs, linear fluorescents, and LED lamps and fixtures) sold within ComEd’s service territory in the PY8 program year. This should be all sales and not just sales of lamps that are discounted by ComEd. [Specify quantity – open end].

4. Please indicate the approximate percentage of your organization’s total lamp sales (unit sales) within ComEd’s service territory that each lamp type represents. This should be all sales and not just sales of lamps that are discounted by ComEd. *The percentages should add to 100%.*

- Q4_1. Incandescent/Halogen Lamps _____%
- Q4_2. CFLs _____%
- Q4_3. Full Wattage Linear Fluorescent _____%
- Q4_4. Reduced wattage Linear Fluorescent _____%
- Q4_5. LEDs (pin, screw based, or fixture) _____%
- Q4_6. LED Exit Signs _____%
- Q4_7. Other – TYPE: _____ %

Efficient Lamp Sales

5. On a scale of 1 to 5, with 1 being not at all involved and 5 being very involved, how involved is your organization in helping your customers determine which light lamps to purchase? [1 – 5]

6. As a result of participating in the BILD program, has your organization been actively trying to increase the volume of efficient lamps sold relative to full wattage lamps? [Yes, No]

a. [If Q6 = yes] How often do you promote high efficiency lamps over the full wattage alternative?

- 1. Always
- 2. Usually
- 3. Sometimes
- 4. Never
- 5. Depending on the circumstance or customer, please specify

b. [If Q6 = yes] What are the primary sales tactics used by your organization to convince your customers to switch to energy efficient lighting? *Drag each box from the left column to the right column in order of most frequently mentioned (top) to most infrequently mentioned (bottom).*

- 1. Longer lifetimes
- 2. Light quality
- 3. Payback period
- 4. Annual energy reduction
- 5. Annual bill savings (\$)
- 6. Reduced O&M
- 7. “Green” or environmental benefits

c. [If Q6 = yes] Are there any other sales tactics you use to convince your customers to switch to energy efficient lighting? [No, Yes – please specify]

7. During this past program year (June 1, 2015 – present) did you sell any high efficiency lamps in ComEd’s service territory that did not receive discounts from the BILD program? [Yes, No]

- a. [If Q7 = Yes] Please estimate how many lamps of each of the following types you sold that did not receive rebates. If any types are not applicable, please leave them blank.
 - 1. CFLs _____
 - 2. LEDs _____
 - 3. LED Exit Signs _____
 - 4. Reduced wattage Linear Fluorescent lamps _____
 - 5. Other (specify) _____
- b. [If Q7 = yes] Why did these lamps not receive discounts?
- c. [If Q7 = yes] What effects, if any, did the BILD program have on your sales of any high efficiency non-program lamps?

8. Regarding the BILD Approved Products List:

- a. Do you feel that the qualified products available through the BILD program are sufficient to meet your customers’ needs (i.e. is there sufficient diversity in lamp types, styles, light output, and etc.)? [Yes, No. If no, explain, noting any particular types of lamps you would like to see on the APL]
- b. Are there any products on the Approved Products List that do not meet the quality standards demanded by you or your customers (in specific or general terms)? [Yes, No. If no, specify]
- c. Do you think the efficiency requirements for BILD qualified products are adequate and appropriate to ensure that only high quality, efficient products are sold? [Yes/No]
- d. [If 8c = No] Please indicate the efficiency requirements that you would like to see instituted for each product class. Be as specific as possible. [Open end]

Program Processes – Customer Information

Beginning in November of 2015, ComEd has asked distributors to provide customer contact information and the business name and address of where the lamps will be installed. This information is needed so that we can more effectively evaluate program impacts and identify ways of improving the BILD program in the future. Based on previous conversations with BILD program distributors, we know that this information can be hard to gather and organize within certain billing and customer relationship management systems. We would like to know more about how you are collecting, organizing, and submitting the required information to determine if there are ways to streamline this activity in future program years.

9. After the requirement to collect customer contact information was instituted, were you able to collect contact information for 100% of BILD transactions? [Yes, No]

a. [If Q9 = no] Approximately what percentage of transactions were you not able to collect this information for? [Specify percent]

b. [If Q9 = no] Why were you not able to collect contact information for these transactions?

1. Customer did not want to provide
2. Customer was a contractor that did not know where the lamps would be installed
3. Sales/administrative staff oversight
4. Other [Specify]

9a. Was the requirement to submit incentive requests AND customer contact information within 15 days an adequate amount of time? [Yes/No]

9b. [If Q9a = No] What amount of time would be more reasonable for providing this information? Please specify the number of days.

10. On a scale from 1 to 10, where 1 is not at all burdensome and 10 is extremely burdensome, how difficult is the BILD transaction reporting process? *Please exclude any administration challenges surrounding changing incentive levels or program suspension. Your answer should be specific to the normal reporting requirements, including the new customer information fields.* [1-10]

11. [If Q10 >= 5] Are there particular aspects of the reporting requirements that are especially burdensome? [Yes, No]

a. [If Q11 = Yes] Please describe these challenges. [Open end]

12. Please describe the software or other tools/methods you use for invoicing, customer relationship management, and BILD reporting requirements. If you are willing, please provide the names of the software you use for these different administrative tasks and if those systems are easily linked to one another. [Open end]

Changing Incentive Levels and Copays

During the past two program years, it has been necessary to adjust the incentive amounts for certain products in the middle of the program year. These adjustments were required due to rapidly dropping prices for certain products in the LED market specifically, as well as overall availability of BILD incentive funding.

13. On a scale from 1 to 10, where 1 is not at all burdensome and 10 is extremely burdensome, how difficult is it for your organization to adapt to changing incentive levels? [1-10]

14. [If Q13<5] What aspects of your billing system or other processes make it relatively easy to update incentive levels? [Open End]

14a. [If Q13>=5] What aspects of your billing system or other processes make it difficult to update incentive levels? [Open End]

15. If external factors continue to require adjustments to incentive levels in the middle of the program year, are there any procedures that ComEd could implement to make this process less of a burden? [Open End]

16. In November of 2015, the BILD program instituted a new rule that a minimum customer co-pay of 50% of the incentive amount is required for all transactions. Since that time, please indicate the approximate percentage of BILD program bulb sales in each category below that triggered the minimum co-pay [for example, for an LED reflector, how often was the final “sale” price less than \$12.00 (\$8.00 incentive + \$4.00 minimum co-pay)]?

- 1. Reduced wattage Linear Fluorescent _____%
- 2. LED reflectors lamps and trim kits _____%
- 3. All other screw based LEDs _____%
- 3. LED Exit Signs _____%

17. Do you think the minimum customer co-pay of 50% of the incentive amount is beneficial to the program? Why or why not? [Open end]

Program Funding Periods

In the past program year, there were several different strategies for incentive budget allocation. In July, a 30-day funding period was instituted, and then in November, 45-day to 60-day funding periods were defined for the remainder of the program year. ComEd understands that these funding cycles were difficult for some distributors. For the next program year (beginning June 1, 2016), ComEd plans to authorize an incentive allocation to each distributor for the entire program year and may allow distributors to apply for more funding as needed/available.

18. To inform the design of potential additional funding cycles, over what time period can you accurately forecast your need for BILD funds (within 10%)?

- 1. 1 month
- 2. 2 months
- 3. 3 months
- 4. 6 months
- 5. Other [Specify]

19. On a scale from 1 to 10, where 1 is not at all burdensome and 10 is extremely burdensome, please rate the level of difficulty associated with the BILD program's discontinuing incentive payments in the middle of the program year. [1-10]

19a. If you have additional comments regarding the discontinuation of incentives mid-program year, please provide them here: [Open End]

Program Satisfaction

20. Beyond those already covered, did you experience any challenges resulting from your participation in the BILD program? [1=Yes, 2=No]

[If 20=1 ASK, ELSE SKIP to 24]

21. What type of challenges did you experience? [Open end]

22. Were these challenges addressed? [1=Yes, 2=No]

[If 22=2 ASK 23]

23. What could the program have done to address the challenges you experienced?
[OPEN END]

24. Do you have any recommendations on how the BILD program could be improved?

This concludes the survey. In the event that we have clarifying questions about your responses, we may need to call you for a brief (5 – 10 minute) follow up phone call.

Followup1. Is there a best time or day of the week to reach you?

Followup2. What is the best phone number to reach you at?

END. On behalf of ComEd, thank you very much for your time, and for the information you provided.

7.3.2 PG&E Battery Charger

7.3.3 Battery Charger Workpaper