



# ComEd Custom Incentives Evaluation Report

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

Presented to  
Commonwealth Edison Company

**DRAFT**

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***Prepared by:***

Kumar Chittory  
Itron, Inc.

Ben Cheah  
Itron, Inc



[www.navigant.com](http://www.navigant.com)

**Submitted to:**

ComEd  
Three Lincoln Centre  
Oakbrook Terrace, IL 60181

**Submitted by:**

Navigant Consulting, Inc.  
150 N. Riverside, Suite 2100  
Chicago, IL 60606

**Contact:**

Randy Gunn, Managing Director  
312.583.5714  
Randy.Gunn@Navigant.com

Jeff Erickson, Director  
608.497.2322  
Jeff.Erickson@Navigant.Com

Rob Neumann, Assoc. Director  
312.583.2176  
Rob.Neumann@Navigant.com

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## 1. INTRODUCTION

This report presents the results of the impact evaluation of ComEd's PY9 Custom Incentives Program. It presents a summary of the energy and demand savings impacts for the total program broken out by relevant measure and program structure details. The appendix presents the impact analysis methodology. PY9 covers June 1, 2016 through December 31, 2017.

Based on the gross impact sample of twenty projects in PY9, the evaluation results yielded an energy savings gross realization rate of 0.86 and peak demand gross realization rate of 1.60. To calculate net savings, the evaluation team used a deemed net-to-gross ratio (NTGR) of 0.58 for energy and demand in accordance with the Illinois Stakeholder Advisory Group (SAG)-approved values. These deemed NTGRs for energy and demand are based on the PY7 NTG analysis.

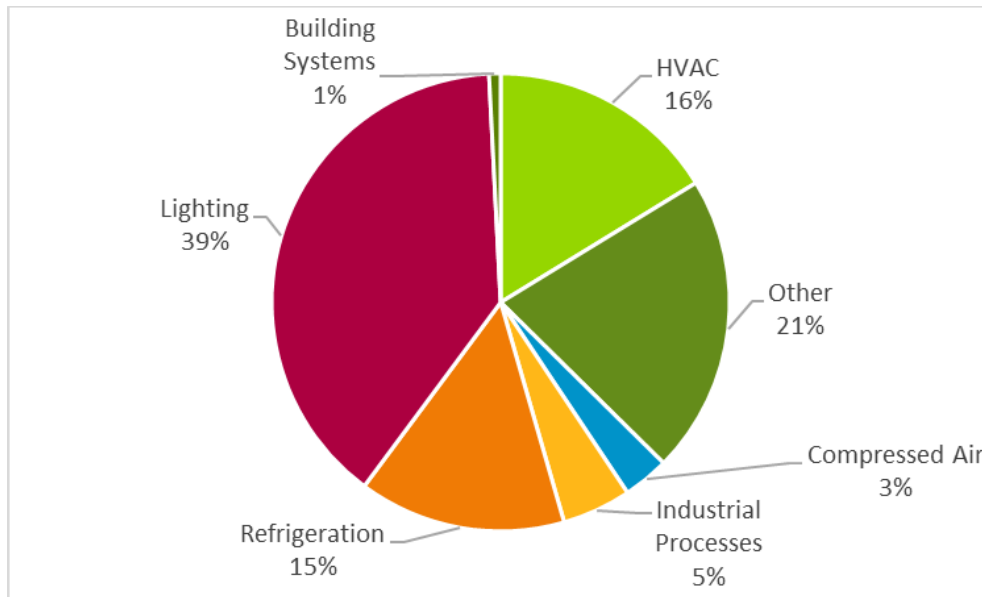
Overall, the program team succeeded in ensuring the installation and proper operation of the implemented measures. The program team continues to collect site-specific pre- and post-metered data for all projects, which enables accurate estimation of ex ante savings. In general, the program team successfully collected site-specific pre- and post-measurement and verification (M&V) data using acceptable methods based on industry practices. The M&V data provided by the program team was useful for the evaluation and allowed the evaluation team to complete the analysis for seven of the twenty projects in the sample using a desk review procedure. For these seven projects, the evaluation team conducted a telephone interview with the site contact to verify the installation of the equipment, validate the data provided by the program team, and facilitate the collection of missing data needed to complete the review.

## 2. PROGRAM DESCRIPTION

ComEd's Smart Ideas for Your Business suite of energy efficiency programs for business customers includes a Custom Incentives (Custom) program. This program provides a custom incentive, based on a formula, for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. Custom incentives are available based on the project's kWh savings, provided the project meets all program eligibility requirements. For eligible projects, the program pays an incentive of \$0.07/kWh saved. This is the seventh year of implementation of the Custom program.

The program had 117 participants in PY9 and consisted of mostly Lighting, "Other", HVAC, and Refrigeration measures as shown in Figure 2-1. Lighting constitutes approximately 39% of the measures in the PY9 population. The measure end-use listed in the final tracking database was used to create the measure distribution chart.

**Figure 2-1. Number of Measures Installed by Type**



Source: Evaluation Analysis

### 3. PROGRAM SAVINGS

Table 3-1 summarizes the incremental energy and demand savings the Custom Incentives Program achieved in PY9.

**Table 3-1. PY9 Total Annual Incremental Savings**

| Savings Category                  | Energy Savings (kWh) | Demand Savings (kW) | Peak Demand Savings (kW) |
|-----------------------------------|----------------------|---------------------|--------------------------|
| Ex Ante Gross Savings             | 48,447,199           | N/A                 | 3,521                    |
| Program Gross Realization Rate    | 0.86                 | N/A                 | 1.60                     |
| Verified Gross Savings            | 41,746,338           | N/A                 | 5,620                    |
| Program Net-to-Gross Ratio (NTGR) | 0.58                 | N/A                 | 0.58                     |
| Verified Net Savings              | 24,212,876           | N/A                 | 3,260                    |

Source: ComEd tracking data and Navigant team analysis.

### 4. PROGRAM SAVINGS BY MEASURE

Savings for the Custom Incentive Program are sampled on and reported at a strata level and do not have measure-level savings. For more information about strata- and site-level savings see Appendix 2.

## 5. IMPACT ANALYSIS FINDINGS AND RECOMMENDATIONS

The evaluation team reviewed ComEd’s tracking data extract to determine reported PY9 ex ante gross savings. The verified gross program impacts for the evaluation for the Custom program were developed based on combination of on-site M&V analysis and engineering desk reviews.

### 5.1 Impact Parameter Estimates

The evaluation team performed engineering calculations to derive evaluated gross energy and demand savings based on data collected during the on-site audit or the desk review process. The savings are site-specific and therefore require site-specific calculators and algorithms in conjunction with data collected from the site. The evaluation team used the data obtained during the M&V efforts to verify measure installation, determine installed measure characteristics, assess operating hours and relevant modes of operation, identify the characteristics of the replaced equipment, support the selection of baseline conditions, and perform ex post savings calculations. Each site evaluation used peak kW savings calculation methodology that was consistent with PJM peak summer demand requirements<sup>1</sup> for each project to calculate the peak kW reduction. The team estimated the lifetime energy and demand savings by multiplying the verified savings by the effective useful life for each measure.

The EM&V team conducted research to validate the non-deemed parameters for this custom program that were not specified in the TRM. The results are shown in Table 5-1.

**Table 5-1. Verified Gross Savings Parameters**

| Gross Savings Input Parameters             | Value      | Deemed * or Evaluated? |
|--|------------|------------------------|
| Gross Energy Savings Realization Rate      | 0.86       | Evaluated              |
| Gross Peak Demand Savings Realization Rate | 1.60       | Evaluated              |
| NTG Ratio                                  | 0.58       | Deemed*                |
| Net Energy Savings (kWh)                   | 24,212,876 | Evaluated              |
| Net Peak Demand Savings (kW)               | 3,260      | Evaluated              |

\* Source: *ComEd\_NTG\_History\_and\_PY8\_Recommendation\_2016-02-26\_Final\_EMV\_Recommendations.xlsx*, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>

Figure 5-1 below shows a comparison of the energy and demand realization rates for every site. The PY9 energy-savings realization rate results ranged from 0.10 to 1.88, which resulted in a program-level realization rate of 0.86. The peak demand-savings realization rates for the twenty projects in the gross sample ranged from 0.09 to 1.43. Eleven of the twenty projects did not claim any ex ante peak demand savings.<sup>2</sup> For twelve out of the twenty projects, the realization rates were within 10 percent of 1.0 for the energy savings; on the other hand, only two of the nine projects were within 10 percent of 1.0 for the peak demand savings.

<sup>1</sup> PJM defines the coincident summer peak period as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, during the months of June through August.

<sup>2</sup> During the evaluation analysis, the team found that only one of these sites had no peak demand savings.

Figure 5-1. Energy and Demand Realization Rates

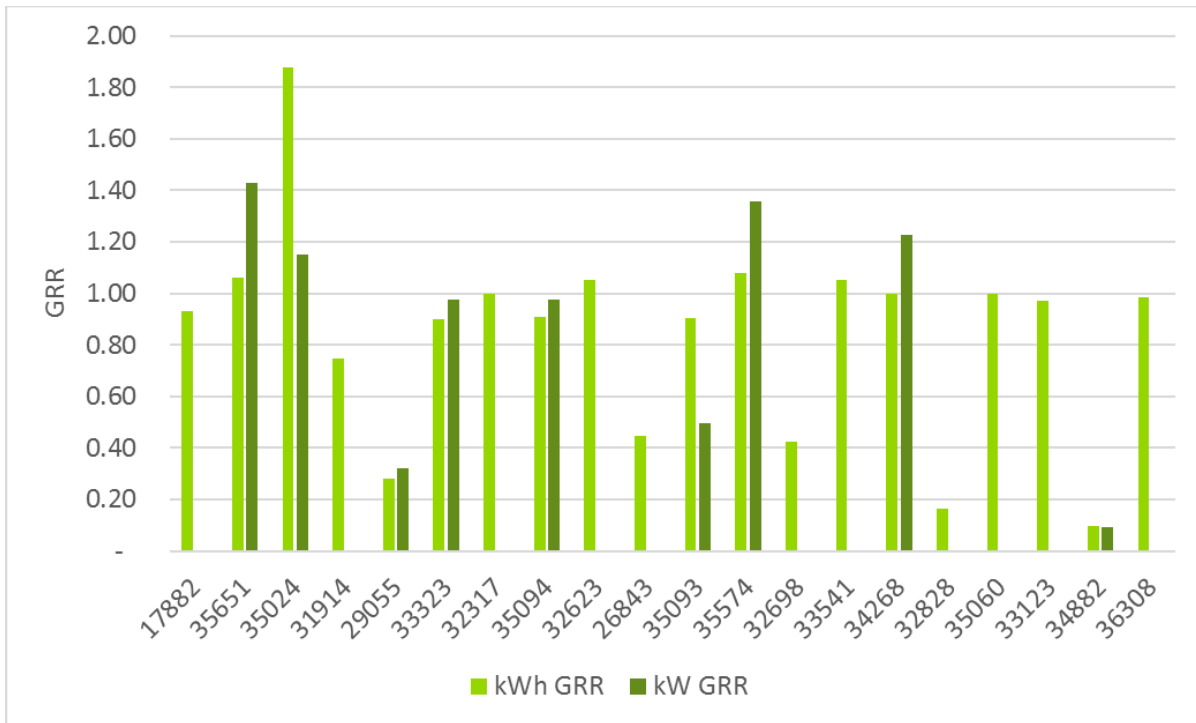
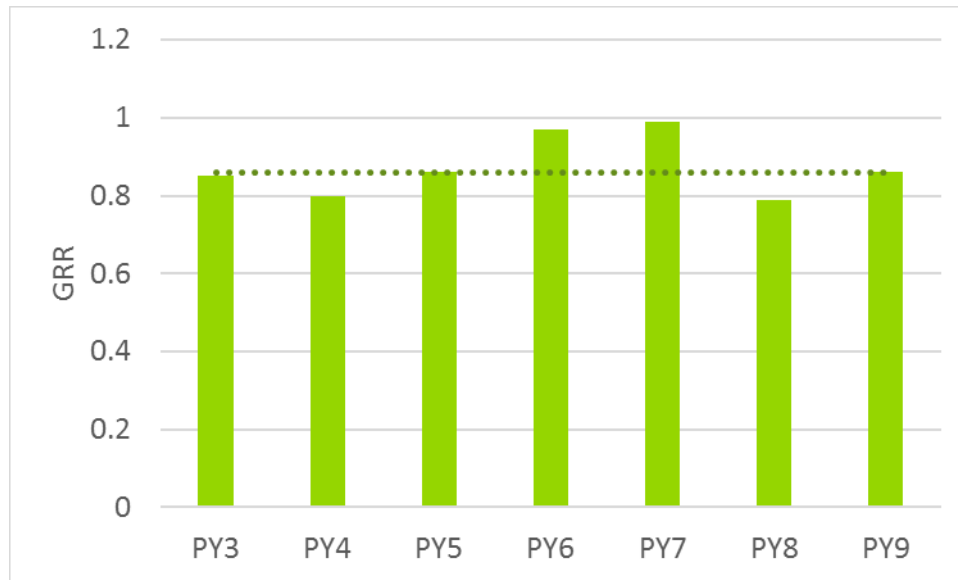


Figure 5-2 below compares the overall program-level energy gross realization rates (GRR) over the past years. There was a general upwards trend between PY4 and PY7 but a dip occurred in PY8 and PY9. However, the PY9 GRR of 0.86 is higher than the previous year and it is comparable to the median (0.86) of GRR over the past seven years. For the future programs years, the implementation team should follow the findings and recommendations when applicable. Following the recommendations and early feedback provided by the evaluation team on the large and complicated projects will bring the GRR closer to 1.0 for the future program cycles.

Figure 5-2. Energy Gross Realization Rates Across Program Years



## 5.2 Other Impact Findings and Recommendations

**Finding 1.** For lighting projects, key parameters in the ex-ante savings estimate like the operating hours, interactive effects and the coincidence factors were found to be inaccurate. (e.g., 35094, 33323, 35651, 35024 and 35094)

**Recommendation 1.** For the lighting projects in the Custom program, it is critical that the site specific operating hours are used instead of using defaults values from the TRM. For small lighting projects, where no measurements are performed for estimating the operating hours, interviews with multiple facility staff should be conducted to estimate the operating hours. Also, the interactive effects and coincidence factors used in the savings estimates should be consistent with the latest version of the TRM.

**Finding 2.** There were multiple instances (31914, 33123 and 34882) where the evaluation team adjusted the ex-ante calculations because the baseline system was incorrectly selected or modeled.

**Recommendation 2.** Baseline selection is one of the most challenging issue for a custom program. Extra care should be taken during the baseline selection process and industry/facility standard practice should be used for capacity expansion or natural replacement projects. If there are any doubts about the baseline selection, the implementation team should pass it through the evaluation team for early feedback before the savings are finalized.

**Finding 3.** There were a few projects (32828, 34882, 32698 and 17882) with major issues surrounding the methodology or assumptions used in the ex-ante savings calculation.

**Recommendation 3.** The evaluation team recommends using additional quality control procedures to identify the deficiencies in the ex-ante calculations. Whenever possible, the savings should be validated using an alternate approach as a sanity check. Care should be taken to adjust metered operation to account for annual changes to operation due to production, temperature or other factors.



**Finding 4.** Lack of claimed demand savings for some projects continues to be an issue for the ComEd Custom program. For PY9, there were nine projects in the evaluation sample where the ex-ante demand savings were not claimed for which the evaluation team found non-zero savings.

**Recommendation 4.** Savings should be claimed for all projects that save energy over the PJM peak summer period of 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, during the months of June through August and reported in the tracking system.

## 6. APPENDIX 1. IMPACT ANALYSIS METHODOLOGY

### 6.1 Sampling

#### 6.1.1 Profile of Population

The table below presents the three sampling strata used in the evaluation of the Custom Incentives Program. This was based on a total of 117 tracking records. Table 6-1 presents the number of records by strata, along with the claimed ex ante gross MWh and kW.

**Table 6-1. PY9 Program Participation by Sampling Strata**

| Sampling Strata  | Ex Ante kWh Impact Claimed | Ex Ante kW Impact Claimed | Tracking Records | Incentive Paid to Applicant |
|------------------|----------------------------|---------------------------|------------------|-----------------------------|
| 1                | 11,309,438                 | 897                       | 4                | 682,695                     |
| 2                | 18,863,237                 | 1,130                     | 15               | 1,229,287                   |
| 3                | 18,274,524                 | 1,495                     | 98               | 1,136,803                   |
| <b>PY9 Total</b> | <b>48,447,199</b>          | <b>3,521</b>              | <b>117</b>       | <b>3,048,785</b>            |

Source: Evaluation Team analysis

#### 6.1.2 Gross Impact (M&V) Sample

Consistent with the evaluation plan, the evaluation team used a stratified random sampling approach to select the gross impact sample of twenty projects. The evaluation team sorted projects based upon the level of ex ante kWh savings and placed the projects in three strata.

Table 6-2 provides a profile of the gross impact M&V sample for the Custom Incentives Program in comparison with the program population. The table shows the resulting sample, consisting of twenty projects. These projects make up approximately 23 million kWh of the ex-ante impact claim, which represents 48 percent of the ex ante impact claim for the program population. The table also shows the ex ante-based kWh sample weights for each of the three strata.

**Table 6-2. PY8 Gross Impact Sample by Strata**

| Sampling Strata  | Population Summary             |                            |             | Sampled Projects               |                   |                             |
|------------------|--------------------------------|----------------------------|-------------|--------------------------------|-------------------|-----------------------------|
|                  | Number of Tracking Records (N) | Ex-ante kWh Impact Claimed | kWh Weights | Number of Tracking Records (n) | Ex-ante kWh       | Sampled % of Population kWh |
| 1                | 4                              | 11,309,438                 | 0.23        | 4                              | 11,309,438        | 100%                        |
| 2                | 15                             | 18,863,237                 | 0.39        | 8                              | 10,043,736        | 53%                         |
| 3                | 98                             | 18,274,524                 | 0.38        | 8                              | 2,032,841         | 11%                         |
| <b>PY9 Total</b> | <b>117</b>                     | <b>48,447,199</b>          | <b>-</b>    | <b>20</b>                      | <b>23,386,015</b> | <b>48%</b>                  |

Source: Evaluation Team analysis

### 6.1.3 Roll-up of Savings

There are two basic statistical methods for combining individual GRR from the sample projects into an estimate of verified gross kWh savings for the population when stratified random sampling is used. These two methods are referred to as “separate” and “combined” ratio estimation.<sup>3</sup> In the case of a separate ratio estimator, a separate gross kWh savings realization rate is calculated for each stratum and then combined. In the case of a combined ratio estimator, evaluation team completes a single gross kWh savings-realization rate calculation without first calculating separate gross realization rates by stratum.

The evaluation team used the separate ratio estimation technique to estimate verified gross impacts for the Custom Incentives Program. The separate ratio estimation technique follows the steps outlined in the California Evaluation Framework<sup>4</sup>, which identifies best practices in program evaluation. The evaluation team matched these steps to the stratified random sampling method that they used to create the sample for the program. The evaluation team used the standard error to estimate the error bound around the estimate of verified gross impacts.

## 7. APPENDIX 2. IMPACT ANALYSIS DETAIL

The Custom Incentives Efficiency program sample includes twenty sites across three strata, as shown in Table 7-1. Most of the savings are due to four sites, which make up the top stratum. These sites account for approximately 59% of the ex post energy savings and approximately 55% of the ex post peak demand savings.

**Table 7-1. PY9 Energy Savings by Strata**

| Strata | Sample Size | Ex Ante Gross Savings (kWh) | Verified Gross Realization Rate | Verified Gross Savings (kWh) | NTGR * | Verified Net Savings (kWh) | Technical Measure Life | Persistence | Effective Useful Life (EUL)† |
|--------|-------------|-----------------------------|---------------------------------|------------------------------|--------|----------------------------|------------------------|-------------|------------------------------|
| 1      | 4           | 11,309,438                  | 1.21                            | 13,689,793                   | 0.58   | 7,940,080                  | N/A                    | N/A         | 12.4                         |
| 2      | 8           | 18,863,237                  | 0.81                            | 15,243,769                   | 0.58   | 8,841,386                  | N/A                    | N/A         | 12.4                         |
| 3      | 8           | 18,274,524                  | 0.70                            | 12,812,777                   | 0.58   | 7,431,411                  | N/A                    | N/A         | 12.4                         |
| Total  |             | 48,447,199                  | 0.86                            | 41,746,338                   | 0.58   | 24,212,876                 | N/A                    | N/A         | 12.4                         |

Source: ComEd tracking data and Navigant team analysis.

\* A deemed value. Source: 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>.

† EUL is a combination of technical measure life and persistence.

Table 7-3 shows the peak demand savings by strata. Verified gross realization rate for all the stratum is over 1.0 as the ex-ante demand savings were not claimed for some of the projects. The evaluation team estimate the ex-post peak demand savings for the projects where applicable and this resulted in high GRR for peak demand.

<sup>3</sup> A full discussion and comparison of separate vs. combined ratio estimation can be found in Sampling Techniques, Cochran, 1977, pp. 164-169.

<sup>4</sup> Tec Market Works, “The California Evaluation Framework,” Prepared for the California Energy Commission, June 2004. Available at <http://www.calmac.org>

**Table 7-2. PY9 Peak Demand Savings by Strata**

| Strata | Sample Size | Ex Ante Gross Peak Demand Reduction (kW) | Verified Gross Realization Rate | Verified Gross Peak Demand Reduction (kW) | NTGR* | Verified Net Peak Demand Reduction (kW) |
|--------|-------------|--|---------------------------------|---|-------|---|
| 1      | 4           | 897                                      | 1.69                            | 1,515                                     | 0.58  | 879                                     |
| 2      | 8           | 1,130                                    | 1.10                            | 1,247                                     | 0.58  | 723                                     |
| 3      | 8           | 1,495                                    | 1.91                            | 2,859                                     | 0.58  | 1,658                                   |
| Total  |             | 3,521                                    | 1.60                            | 5,620                                     | 0.58  | 3,260                                   |

Source: ComEd tracking data and Navigant team analysis.

\* A deemed value. Source: 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>.

Table 7-4 and Table 7-5 show the savings by site. Most of the savings are due to projects 17882, 35651, 35024 and 31914; which account for approximately 59% of the ex post energy savings and approximately 55% of the ex post demand savings.

**Table 7-3. PY9 Energy Savings by Site**

| Sampled Application ID | Sample Strata | Ex Ante Gross Savings (kWh) | Verified Gross Realization Rate | Verified Gross Savings (kWh) | NTGR *      | Verified Net Savings (kWh) |
|------------------------|---------------|-----------------------------|---------------------------------|------------------------------|-------------|----------------------------|
| 17882                  | 1             | 4,175,494                   | 0.93                            | 3,882,207                    | 0.58        | 2,251,680                  |
| 35651                  | 1             | 2,049,207                   | 1.06                            | 2,171,632                    | 0.58        | 1,259,547                  |
| 35024                  | 1             | 3,399,058                   | 1.88                            | 6,375,614                    | 0.58        | 3,697,856                  |
| 31914                  | 1             | 1,685,679                   | 0.75                            | 1,260,340                    | 0.58        | 730,997                    |
| 29055                  | 2             | 1,329,962                   | 0.28                            | 373,565                      | 0.58        | 216,668                    |
| 33323                  | 2             | 1,283,634                   | 0.90                            | 1,152,504                    | 0.58        | 668,452                    |
| 32317                  | 2             | 1,606,432                   | 1.00                            | 1,606,432                    | 0.58        | 931,731                    |
| 35094                  | 2             | 1,087,127                   | 0.91                            | 986,543                      | 0.58        | 572,195                    |
| 32623                  | 2             | 1,063,245                   | 1.05                            | 1,117,935                    | 0.58        | 648,402                    |
| 26843                  | 2             | 1,361,549                   | 0.45                            | 610,156                      | 0.58        | 353,890                    |
| 35093                  | 2             | 1,298,749                   | 0.90                            | 1,175,228                    | 0.58        | 681,632                    |
| 35574                  | 2             | 1,013,038                   | 1.08                            | 1,094,186                    | 0.58        | 634,628                    |
| 32698                  | 3             | 471,730                     | 0.42                            | 200,458                      | 0.58        | 116,266                    |
| 33541                  | 3             | 135,577                     | 1.05                            | 142,335                      | 0.58        | 82,554                     |
| 34268                  | 3             | 524,032                     | 1.00                            | 524,032                      | 0.58        | 303,939                    |
| 32828                  | 3             | 269,260                     | 0.16                            | 43,945                       | 0.58        | 25,488                     |
| 35060                  | 3             | 199,305                     | 1.00                            | 199,003                      | 0.58        | 115,422                    |
| 33123                  | 3             | 221,016                     | 0.97                            | 214,193                      | 0.58        | 124,232                    |
| 34882                  | 3             | 120,672                     | 0.10                            | 11,521                       | 0.58        | 6,682                      |
| 36308                  | 3             | 91,249                      | 0.98                            | 89,794                       | 0.58        | 52,081                     |
| <b>Total</b>           |               | <b>23,386,015</b>           | <b>NA</b>                       | <b>23,231,623</b>            | <b>0.58</b> | <b>13,474,341</b>          |

Source: ComEd tracking data and Navigant team analysis.

\* A deemed value. Source: 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>.

**Table 7-4. PY9 Peak Demand Savings by Site**

| Sampled Application ID | Sample Strata | Ex Ante Gross Peak Demand Reduction (kW) | Verified Gross Realization Rate | Verified Gross Peak Demand Reduction (kW) | NTGR* | Verified Net Peak Demand Reduction (kW) |
|------------------------|---------------|--|---------------------------------|---|-------|---|
| 17882                  | 1             | 0  | -                               | 248                                       | 0.58  | 144                                     |
| 35651                  | 1             | 330                                      | 1.43                            | 471                                       | 0.58  | 273                                     |
| 35024                  | 1             | 567                                      | 1.15                            | 651                                       | 0.58  | 378                                     |
| 31914                  | 1             | 0  | -                               | 145                                       | 0.58  | 84                                      |
| 29055                  | 2             | 256                                      | 0.32                            | 82  | 0.58  | 48                                      |
| 33323                  | 2             | 150                                      | 0.98                            | 147                                       | 0.58  | 85                                      |
| 32317                  | 2             | 0  | -                               | 183                                       | 0.58  | 106                                     |
| 35094                  | 2             | 128                                      | 0.98                            | 125                                       | 0.58  | 73                                      |
| 32623                  | 2             | 0  | -                               | 89  | 0.58  | 52                                      |
| 26843                  | 2             | 0  | -                               | 119                                       | 0.58  | 69                                      |
| 35093                  | 2             | 311                                      | 0.49                            | 154                                       | 0.58  | 89                                      |
| 35574                  | 2             | 133                                      | 1.36                            | 180                                       | 0.58  | 105                                     |
| 32698                  | 3             | 0  | -                               | 1   | 0.58  | 0                                       |
| 33541                  | 3             | 0  | -                               | 15  | 0.58  | 9                                       |
| 34268                  | 3             | 73                                       | 1.23                            | 90  | 0.58  | 52                                      |
| 32828                  | 3             | 0  | -                               | 0   | 0.58  | 0                                       |
| 35060                  | 3             | 0  | -                               | 55  | 0.58  | 32                                      |
| 33123                  | 3             | 0  | -                               | 9   | 0.58  | 5                                       |
| 34882                  | 3             | 22                                       | 0.09                            | 2   | 0.58  | 1                                       |
| 36308                  | 3             | 0  | -                               | 10  | 0.58  | 6                                       |
| Total                  |               | 1,970                                    | NA                              | 2,777                                     | 0.58  | 1,611                                   |

Source: ComEd tracking data and Navigant team analysis.

\* A deemed value. Source: 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>.

† Based on evaluation research findings.

The evaluation team has provided ComEd with site-specific M&V reports for each verified project. These site-specific impact evaluation reports summarize the ex ante savings in the end of year summary submitted, as well as the ex post M&V plan, data collected at the site, and all the calculations and parameters used to estimate savings. Table 7-4 summarizes the results for each project. The evaluation team uncovered some issues in twelve of the twenty projects, which resulted in energy or demand realization rates with a discrepancy of greater than 10% from a realization rate of 1.0. Some key observations from these site-specific evaluation results are discussed below for each project that saw large differences in savings.

- Project #35024: The major difference in savings is the increase in the HOU of the warehouse lighting to 8,760. The team also adjusted the CF and interactive effects to reflect the TRM version 5.0.
- Project #29055: The main reason for reduction of the savings for this project is adjustments made to the analysis based on the high efficiency lighting installed at the new facility. Another reason is the operating sequence of the VFD compressor identified during the evaluation site visit.
- Project #31914: The ex ante and ex post analysis differ in approach, as the evaluation team did not agree on the ex ante approach of comparing energy usage of one building to another without an in-depth analysis of the differences between the two buildings. Therefore, it is not possible to determine the specific factors which led to the low GRR.
- Project 33323: The major difference in the ex ante and ex post savings was due to reduction in operation hours of the entry way lighting to 4,380 hours per year. The evaluation team adjusted the operational hours based on the interview with the customer. In addition, the team adjusted the interactive effects and Coincident Factors to make them consistent with the TRM version 5.0.
- Project #26843: The reduction in savings for this project was primarily due to the load on the chiller system being significantly less than anticipated in the original analysis, which accounted for approximately 99% of the adjustment to the savings.
- Project 35093: The 10% reductions in ex ante savings for this project was due to the adjustments made to HVAC interactive effects. The team updated the energy and demand savings interactive effects for this project to be consistent with the Illinois TRM V5.
- Project 35574: The ex ante demand savings calculations were incorrect. The evaluation? team assumed that the peak demand would be equal to the maximum observed pre- and post-case interval values. Additionally, the interval data was not converted to power kW from half-hour energy kWh values.
- Project #32698: The initial metering was typical for the winter operation, but did not accurately reflect the summer operation when greater flow was required. The ex post analysis utilized a larger amount of data to incorporate the typical annual operation of the facility, resulting in reduced savings estimates.
- Project #32828: The significant reductions in ex post savings for this project were due to multiple adjustments to the analysis. Ex post analysis limited the savings to temperatures above 45° F to be consistent with the pre-operation profile? and it resulted in a 50% reduction in savings. Additionally, changing the cooling load profile to sensible cooling rather than using enthalpy reduces the savings by an additional 30%.
- Project #34882: Ex-ante savings overestimated the baseline demand usage for the installed equipment. The evaluation team updated the baseline based on the manufacturer specification sheets and the site visit. Adjusting the baseline assumptions for this project resulted in a 71% reduction in savings. The savings were further reduced based on the measured idle demand of similar units to the baseline units installed at the site.