

Large Commercial & Industrial Research: Participant Trend Analysis (Final)

Submitted To:

Lori Lewis
SERA Evaluation Consultant Team
Connecticut Energy Efficiency Board

Submitted By:



Energy Market Innovations, Inc.
83 Columbia Street, Suite 400
Seattle, WA 98104
T 206.621.1160
www.emiconsulting.com

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EXECUTIVE SUMMARY

Introduction

This report describes the aggregation and analysis of energy efficiency program-tracking data from the large commercial and industrial (C&I) programs being operated by the two major energy utilities in Connecticut. As requested by the Connecticut Energy Efficiency Board (EEB), Energy Market Innovations, Inc. (EMI) examined four years of program-tracking data from Connecticut's two major C&I energy efficiency programs: Energy Conscious Blueprint (ECB) and Energy Opportunities (EO). These two programs are each operated independently by The United Illuminating Company (UI) and Connecticut Light & Power (CL&P), and their subsidiary natural gas companies: Yankee Gas, Southern Connecticut Gas, and Connecticut Natural Gas (together, the Companies). The ECB program is primarily directed toward maximizing electric and natural gas savings during a facility's initial construction or major renovation, while the EO program focuses on encouraging electric and natural savings in existing facilities through incentives supporting qualified efficiency improvements. Combined, these two programs account for 59 percent of electric energy savings and 87 percent of natural gas energy savings that are attributed to Connecticut's C&I program portfolio.

In addition to this Executive Summary, this report contains an overview of the study, a brief explanation of the methodologies employed, and the key results and recommendations. Detailed tables supporting the results are included as Appendix A: Detailed Tables.

Purpose of the Study

The purpose of this study was to provide program staff and the EEB with an understanding of the most important participation trends and developments in the EO and ECB programs in recent years, viewed on an aggregated, statewide basis. Based on these findings, the study is also intended to provide guidance to EO and ECB program staff to help them more effectively target the remaining savings opportunities and to encourage additional comprehensive energy efficiency projects among their customers. The results of this study compliment more exhaustive research activities currently underway by the evaluation team.

In conducting this trend analysis, the team reviewed program-tracking data for completeness and consistency across programs and Companies. Based on this review, the evaluation team also provides recommendations for how the Companies can improve the usability of their program-tracking data to better inform future marketing efforts and allow for more in-depth reporting and evaluation.

Methodology

As part of the project-planning process, the evaluation team requested and received copies of the Companies' C&I EE program participation databases. As a necessary first step in data analysis, the EMI evaluation team checked, cleaned, and merged the relevant data fields from the databases provided by the Companies into one consistent format. Once merged, this database contained records of all incented energy efficient equipment installed by participants under the ECB and the EO programs between the years 2008 and 2011. This provided the foundation for the evaluation team's analysis and highlighted any gaps in the Companies' data. In order to identify participation trends in each program, EMI produced detailed summary tables.

The measure or end-use categories tracked by each company were not identical, so the team had to define common types of, or “harmonize” project attribute definitions in the data analysis process to produce one statewide database. As detailed in Section 2, the evaluation team recoded measure descriptions into 11 commonly used categorical measure types that were identified as consistent across the Companies and programs. Likewise, the team recoded facility-type information (e.g., office, retail, warehouse) into 10 consistent facility groups across companies and programs, again using standard industry definitions. EMI then applied these harmonized measure and facility categories in all follow-up analysis of data.

Recommendations

Based on the evaluation team’s analysis of the program-tracking data, we provide the following recommendations.

The evaluation team recommends that the Companies should continue to focus on adding improvements to HVAC systems and motors and drives in addition to any cost-effective lighting improvements (including lighting controls). Per the program-tracking database, improvements to lighting and HVAC are most likely to be installed at the same facility in both the ECB and EO programs. Our analysis revealed that between 2008 and 2011, 55% of all ECB comprehensive projects and 25% of all EO comprehensive projects contained at least improvements to both lighting and HVAC end-uses (some projects contained a third or fourth end-use). It is likely that these equipment combinations present the most cost-effective energy efficiency opportunities across the widest segment of C&I customers.

The evaluation team recommends that the Companies consider encouraging industrial and manufacturing facilities to complete additional comprehensive projects as a part of the ECB program. The Companies should consider increasing efforts at engaging these facilities and investigate what types of comprehensive projects will be valuable for them. EMI’s research identified that these facilities account for a large portion of the overall program participation and energy savings impact but that comprehensive projects are relatively infrequently; only 20% of the industrial and manufacturing facilities that participated in the ECB program improved more than one end-use between 2008 and 2011.

The evaluation team recommends that the Companies should continue to encourage institutional facilities to complete projects as part of the ECB program. The ECB program has been very successful in gaining participation of educational facilities and health care facilities, and staff should expand their engagement of these sectors. While these segments account for a smaller proportion of the ECB program participation, these customer types achieved higher-than-average kWh savings per account between 2008 and 2011. This suggests that they present additional opportunities for the program to achieve cost-effective savings by maximizing the energy savings per account. In addition, given that these facilities typical have long operating hours, high and predictable occupancy rates, and high construction and remodeling standards, they are prime candidates for comprehensive project investment.

The evaluation team recommends that the Companies consider targeting retail outlets and office buildings as part of the comprehensive initiative within the EO program. EMI’s research found that the EO program frequently engages both retail outlets and office buildings and that these segments account for a significant portion of the program’s energy savings. However, comprehensive projects are less frequent in both of these market segments. Given that both segments account for a significant portion of the participating projects and therefore, present an opportunity for growth, the Companies should investigate whether targeting these facilities would be a cost-effective method for increasing comprehensive projects, considering that there may be limited opportunities for comprehensive projects given the nature of retail and office building operations.

While retail and office spaces provided frequent opportunities for participation, the EO program should also consider efforts that would increase participation among industrial and manufacturing customers. While these facilities make up only 14% of the participating accounts, they represent 28% of the overall kWh savings. Likewise, the average kWh savings at each account is double the program's average. Increasing participation among this sector should allow the program to run more cost-effectively by increasing the energy savings per customer.

The evaluation team recommends that the Companies agree upon and use a single, consistent system of data classes for program tracking. Aggregation, analysis and comparison of the utilities' efficiency project databases were substantially limited by a lack of consistent reporting methods and practice, both within each program and across them. An agreement to adopt a common classification scheme and lexicon across the State for projects, measures, customers, and facility types, etc. would be very valuable in helping the EEB evaluate program outcomes and allow the Companies to market the programs more effectively. The evaluation team suggests the following improvements to consistency:

- Use consistent US Postal Service addressing standards including separate fields for facility name, street address, city, and zip code. Another option is to incorporate a premise number into the program databases that uniquely identifies facilities. This addition would eliminate the need to aggregate and manage the program data based on address information and instead, provide a clear method for aggregation and analysis of specific locations for both program managers and evaluators. However, this addition may be cost-prohibitive due to the need to alter existing database structures.
- As much as possible, collect phone number, first name, last name, position, and email addresses of an appropriate contact for all projects.
- Record common project milestone dates including application, installation, and closed dates (as applicable).
- Consistently record a NAICS code or similar code to provide a clear, consistent, and comprehensive presentation of the nature of the facility for each project.
- Ensure quantities reflect the actual number of units of a particular measure installed.
- Present consistent measure-level information including measure or product descriptions and "measure type" classifications such as lighting equipment, lighting controls (e.g., daylight sensors, occupancy sensors), building controls, HVAC equipment, compressors, motors & drives, refrigeration equipment, building envelope improvements, process improvements, and hot-water heating equipment. This consistency might be practically implemented via data-entry lexicon controls such as the use of "pick-lists." Currently, the project tracking databases often grouped like measures together as part of the same record (e.g., both lighting equipment and lighting controls are recorded as part of the same record). This grouping artificially limits the level of detail possible for analysis of individual equipment attributes such as energy savings, quantities, and incentives. An alternative method of tracking projects would include equipment detail at the line item level as based on the application paperwork. This level of detail would allow for more detailed analysis of the project tracking data which would in turn support more targeted program marketing and more robust evaluation research.

Note that EMI did not investigate the amount of resources that would be required to implement these changes. Therefore, the Companies should balance the benefits of making these recommended changes with the costs of altering databases and data collection forms.

The evaluation team recommends that the Companies and the EEB pursue a full market assessment. EMI's analysis of these market characteristics of both the ECB and EO program participants is intended to provide high-level recommendations to guide future marketing and customer engagement efforts. These will be expanded upon as part of the process evaluation research currently underway. However, EMI believes that a full market assessment would provide greater insight by highlighting gaps

in market penetration and additional potential for program savings. In addition, a market assessment could include primary research that would explore the energy efficiency needs of program non-participants.

1. INTRODUCTION

This introduction provides an overview of the purpose of the participant trend analysis research, including the intended use of the research. This section also includes a brief overview of the design and goals of ECB and EO programs. This information provides the necessary context for interpreting the results presented in the following chapters.

1.1. Purpose of the Study

The purpose of this study was to provide guidance to program staff on future implementation strategies based on the participation trends within the EO and ECB C&I programs that emerged as part of the evaluation team's examination of the program-tracking data. This guidance will allow the EO and ECB program staff to target remaining savings opportunities in a more focused manner and encourage additional comprehensive energy efficiency projects among their customers. The results of this study compliment more exhaustive research activities currently underway by the evaluation team.

In addition, the team reviewed program-tracking data for completeness and consistency across programs and Companies. As a result of this review, the evaluation team also provides recommendations for how the Companies can improve the usability of their program-tracking data to better inform future marketing efforts and allow for more in-depth reporting and evaluation.

EMI conducted this research from both a technological and market perspective with a focus on comprehensive projects. In addition to broad trends, EMI's research focused on the following research questions:

1. Which measure combinations have been successful for each program and therefore, can serve as the focus for future efforts?
2. Based on past participation, in which markets should the Companies focus future efforts?
3. What are the possible drivers (e.g., market demand or program activities) for some of the key trends that emerged from the program-tracking data?
4. How can the Companies improve data consistency and completeness across programs and Companies?

1.2. Description of Programs

Energy Conscious Blueprint

Per the 2012 Conservation and Load Management Plan, the objective of the ECB program is *“to maximize electric and natural gas energy savings for ‘lost opportunity’ projects, at the time of initial construction/major renovation, or when equipment needs to be replaced or added.”* The program accomplishes this by working closely with new construction trade allies (e.g., contractors, architects, engineering firms) to raise awareness of energy efficiency technologies and whole-building design practices and assist these allies in illustrating the benefits of energy efficiency during initial construction to property developers and owners. In addition, based on the scope of the project, the program offers a variety of incentives for the following systems:

- Lighting and lighting controls
- HVAC systems
- Hot water heating equipment
- Motors
- Process equipment

The proposed 2012 budget for the ECB program was \$10,889,221 (23 percent of the overall C&I proposed budget).

Energy Opportunities

Per the 2012 Conservation and Load Management Plan, the EO program “*encourages customers and their contractors or Energy Service Companies (ESCOs) to save energy in existing commercial, industrial, and municipal facilities by offering incentives, financing and other resources to replace existing, inefficient equipment with energy-saving options.*” In addition, the program seeks to increase the overall performance of buildings by encouraging a “holistic” or whole-building approach to energy efficiency. To accomplish this, the program encourages “comprehensive” projects that encompass multiple measures.

To achieve these goals, the program works closely with trade allies (primarily contractors and ESCOs) in addition to offering financial assistance to encourage the replacement of inefficient equipment with high efficiency models. The program offers additional “bonus” incentives for projects that are considered comprehensive. For large-scale energy-saving projects, the program primarily provides custom incentives, where energy savings estimates and attendant incentives are calculated using standard engineering practices. The following traditional types of energy efficiency improvements are targeted with prescriptive rebates:

- Lighting and lighting controls
- HVAC systems
- Vending equipment
- Kitchen equipment
- Laundry equipment

The proposed 2012 budget for the EO program was \$16,198,999 (35 percent of the overall C&I proposed budget).

2. METHODOLOGY

EMI performed its analysis of participation trends using data extracted from the Companies' program-tracking databases produced by the ECB and EO programs. Before conducting this analysis, EMI prepared the data to ensure they contained consistent information across the Companies. This preparation included identifying common fields of data and appropriately merging the two company databases, consistently classifying measures for each project, and consistently classifying facility type for each project.

2.1. Database Merge

Both Companies provided the evaluation team with program-tracking databases. UI provided files for each program, while CL&P provided a single file for both. For this study, the evaluation team selected projects from the ECB and EO programs only and identified essential fields, which included:

- Project number
- Project name
- Measure description
- End-use code
- Installed quantity
- Annual electrical savings (kWh)
- Lifetime electrical savings (kWh)
- Peak demand savings (kW)
- Annual natural gas savings (therms)
- Rate code
- Facility type
- Installation date
- NAICS and/or SIC code.

EMI merged the database files to create a combined database containing all measures completed by ECB and EO program participants from 2008 to 2011.

Once merged, EMI removed measures with no recorded electric or gas savings and measures completed outside of the 2008 to 2011 time frame. In addition, EMI also removed records of project bonuses, design incentives, and administrative adjustments, which had no associated savings recorded¹. While these types of "measures," most notably design incentives, may be critical in enabling other measures that do include savings, the evaluation team's research focused on projects and equipment. After excluding these cases, the database contained 11,843 cases.

Of the aforementioned data fields, only the facility type textual description field had a large number of cases with missing data. The evaluation team used NAICS and SIC codes to assign a facility type to projects with missing data, as detailed in Section 2.2. In order to ensure measures were categorized

¹ Of the 1,978 cases removed, 192 were bonuses for comprehensive projects and 22 were design incentives. Administrative adjustments totaled 72 cases. "Incentive cap" made up 1,034 cases. The remainder was associated with specific measures but listed zero or missing savings values.

consistently and with an increased level of detail, the evaluation team also developed a methodology for assigning measure categories, detailed in Section 2.3.

2.2. Facility Type Classification

Based on the available data, the evaluation team elected to use facility type as a proxy for the customer type analysis described in the research objectives. A harmonized facility type classification was developed to aid in the analysis and comparison across programs and companies. Facility types present in the program tracking databases were recoded into the harmonized classification of 10 facility types, detailed in Table 2-1. There were a significant number of cases where one of the three facility type variables were missing but all cases had at least one of the three variables.²

Of the 1,541 measures without a facility type in the tracking database, 1,367 had a NAICS code. The evaluation team merged in NAICS descriptions for these measures and assigned these facilities with a facility type based on the NAICS descriptions; these 1,367 measures represented 170 different NAICS codes. The evaluation team reviewed each NAICS code and description and assigned that code to one of ten harmonized facility types. A total of 212 measures had facility type of “OTHER” or “UNABLE TO CLASS” in the program-tracking database; the evaluation team also reclassified these measures based on NAICS descriptions when available.

EMI assigned the remaining 174 measures without a tracking database facility type or a NAICS code a facility type based on SIC code and description using the same protocol as with NAICS codes. The 174 measures represented 18 SIC codes.

Table 2-1. Harmonized Facility Type Classification

Harmonized Facility Type	Example Tracking Database Facility Types
<i>Education</i>	Education, schools
<i>Grocery</i>	Convenience stores, food stores
<i>Health Care</i>	Hospitals
<i>Lodging</i>	Motel/hotel, nursing homes
<i>Office</i>	Communications, construction, government
<i>Food Service</i>	Fast food restaurants, restaurants
<i>Retail</i>	Apparel, entertainment
<i>Warehouse</i>	Warehouse, wholesale
<i>Industrial/Manufacturing</i>	Industrial, chemicals, food processing, paper, primary metals, rubber/plastics, textiles
<i>Other Facilities</i>	Agricultural, transportation, sports arena

2.3. Measure Classification

The evaluation team developed automated data sorting rules based on text strings in the Companies’ database measure description fields and end-use codes to assign measure categories. This effort also

² There were 3,741 records missing a NAISC code, 3,121 missing a SIC code and 1,541 missing a facility type code.

ensured that measures were classified consistently in the cases where equivalent equipment was found in multiple use codes. Examples of measures included in the 11 measure categories are detailed in Table 2-2.

The rules for measure classification were order-sensitive, applying more specific rule tests on program records before less specific ones. The rules fell into two groups: the more specific rules searched for text strings within the measure descriptions (i.e. particular words indicating a type of measure, such as the occurrence of “air” and “compressor,” or “LED” and “cooler” in a measure description), while the less specific rules were based solely on use codes. In the event that text in a measure description did not pass any of the rule tests related to measure descriptions and so be classified accordingly, it was classified based on its end-use code. Two separate analysts reviewed all the assigned measure categories for accuracy after coding.

Table 2-2. Harmonized Measure Categories

Measure Category	Example Measures and Use Codes
Lighting	Lighting retrofit, exterior lighting, occupancy sensors, daylight controls
Controls (<i>non-lighting</i>)	CO2 controls, energy management systems (EMS), HVAC occupancy controls
Process	Process cooling tower fans, steam trap replacement, plastic injection molding machines, laser upgrades
Compressors	Air compressors, cycling air dryers, air receiver and regulators
Refrigeration	Water chillers, freezer evaporators, anti-sweat heater controls, night covers, oversized condensers
HVAC	Heat pumps, radiant heaters, condensing furnaces, condensing boilers, differential enthalpy controls, cool roofs, air cooler chillers, RTU’s or roof top units
Building Shell	Wall and roof insulation, low-emissivity windows, window film, piping insulation
Motors/Drive	Standard motors, variable frequency drives (VFDs) for HVAC fan motors, hot water pump VFDs, ECM motors
Hot Water	High efficiency domestic hot water heaters
Other	Transformers, vending misers
Custom	Custom projects

3. RESULTS

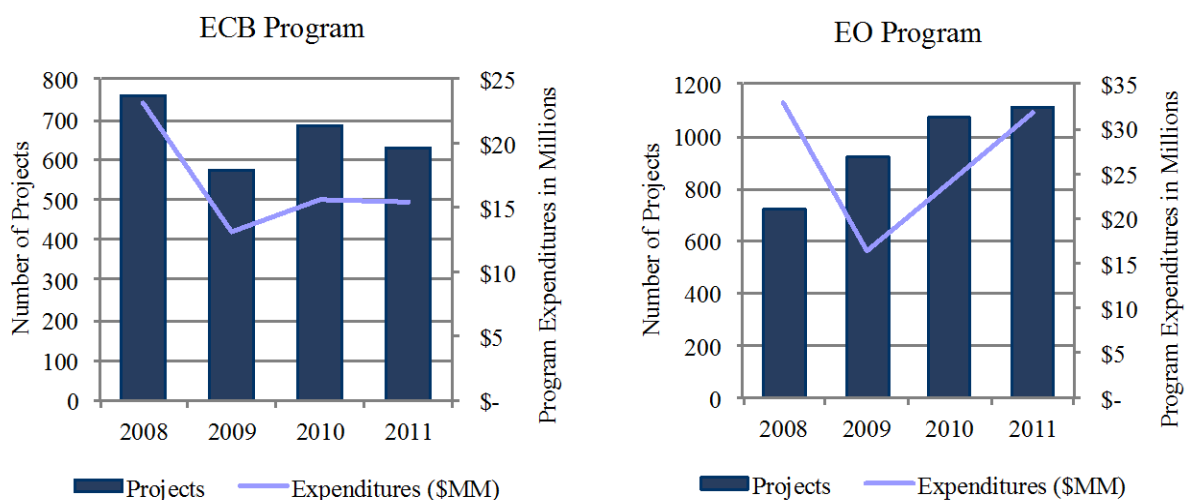
The remainder of the report presents the results of EMI's analysis of the combined program-tracking databases, representing a statewide perspective of the recent participation and near-term opportunities associated with these important programs. This analysis focuses on four areas: (1) program participation drivers, (2) comprehensive projects, (3) program participant market characteristics, and (4) database consistency and completeness. For each area, we present results by program.

3.1. Program Participation Drivers

In order to establish a historical context for each program, the evaluation team first examined participation in the programs over time. This examination included a review of program participation by expenditure, by project type, and by customer type. While our research provides insight into what may be driving the trends observed, it also provides a foundation for the reminder of the analysis regarding comprehensive projects and market characteristics.

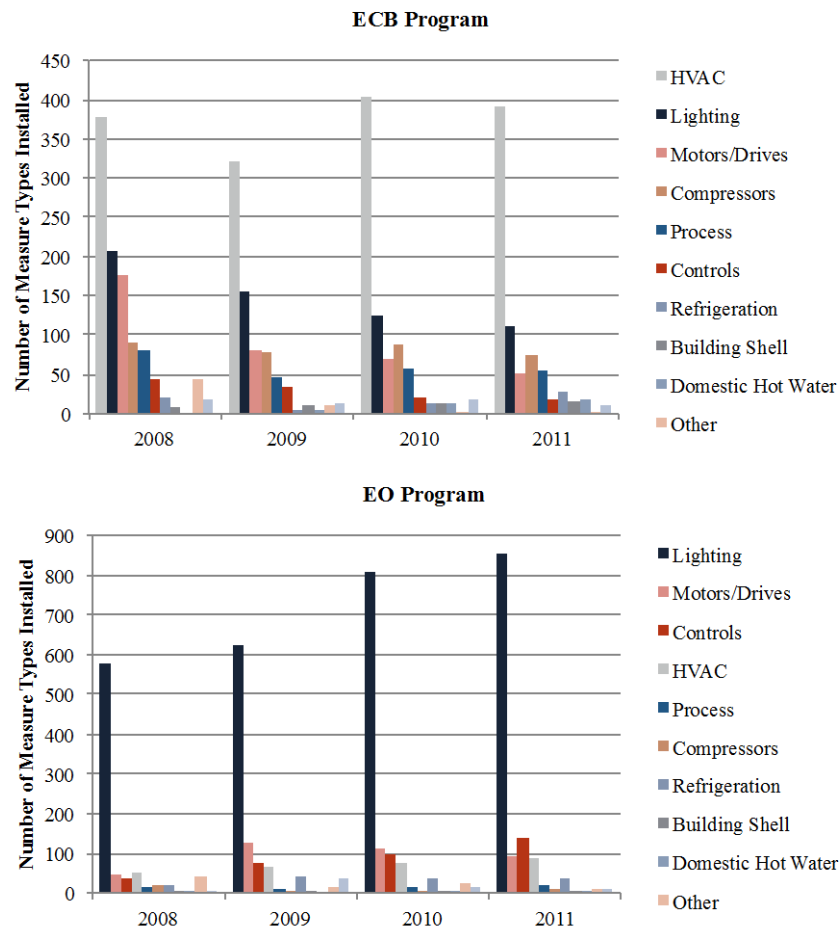
First, participation in the program of both the ECB and EO program was generally tied to program budgets as would be expected. However, in several significant ways, participation levels did *not* track investment, as discussed below. The general trends across the programs are likely in response to external economic conditions and customers' reaction to those conditions. As expenditures increased or decreased, the number of projects generally varied the same way, although not by a constant ratio. Over time, participation in the ECB program decreased slightly while the EO program expanded significantly. The decline in ECB program activity may be attributed to the slowing of new construction starts due to the economic downturn, while the increase in EO program activity may be attributed to renewed interest in retrofitting existing facilities as customers are hesitant to invest the capital funds associated with new construction. Figure 3-1 below illustrates participation in each program and the annual program budgets.

Figure 3-1. Program Participation and Expenditure by Year



Second, the projects completed as part of the ECB and EO programs both comprised a unique mix of measures with some end-uses installed more frequently than others. For the ECB program, the most frequently incented measure type was HVAC equipment followed by lighting. By comparison, the EO program consisted overwhelmingly of lighting projects. However, while the number of lighting projects in the EO program has steadily increased, the percentage of overall program energy savings associated with lighting has decreased significantly (75 percent in 2008 to 59 percent in 2011). This trend suggests that while the program continues to focus on lighting projects, the market for large lighting replacement projects (typified by large office building T-12 to T-8 retrofits) is becoming saturated and the program is seeing diminished returns from a shift to smaller lighting projects that tend to require more effort and cost per lighting-kWh of savings. Given new federal lighting standards, this shift is likely to continue in the near term and so supports the program's increased focus on encouraging projects that include more than just lighting equipment. Figure 3-2 below illustrates the distribution of projects across time and measure type for each program.

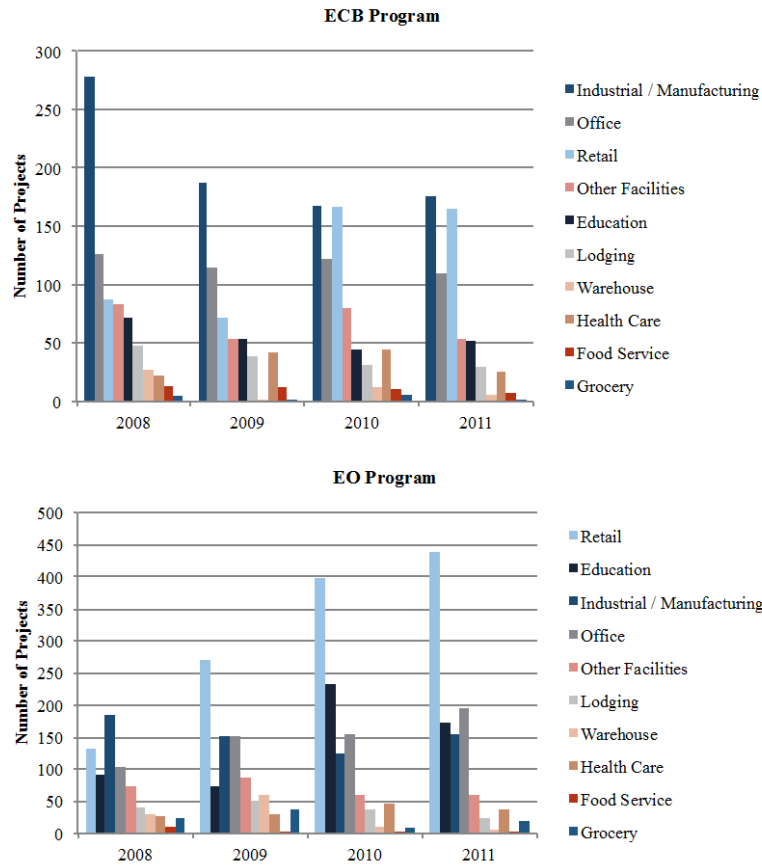
Figure 3-2. Project Type by Year



Finally, for the ECB program, industrial, office, and retail facilities have historically accounted for a majority of program projects. However, over time, the number of industrial facilities participating has decreased. Conversely, in the EO program, the number of participating retail facilities has significantly increased (134 projects in 2008 to 438 in 2011). Again, this increase may be the result of economic trends

as retail outlets attempt to reduce energy costs amid reduced consumer demand. Figure 3-3 illustrates program participation by customer type of each program between 2008 and 2011.

Figure 3-3. Participating Customer Type by Year



3.2. Comprehensive Projects

Currently, one of the goals of both the ECB and the EO program is to encourage customers to complete comprehensive energy efficiency projects, defined as those that include improvements to more than one energy end-use. The rationale for this goal is to move the programs beyond the current predominance of projects that include only lighting measures to achieve deeper, whole-building energy efficiency. To support these efforts, EMI examined the program-tracking database from both a technological and market perspective.

Technological Perspective

From the technological perspective, some types of equipment are more likely to be installed together. Based on our analysis, EMI recommends that the Companies should continue to encourage comprehensive projects that focus on improving not only the lighting equipment (including lighting controls) but also the HVAC system and any motors and drives at a facility.

Per the program-tracking database, improvements to lighting and HVAC are the most likely combination of different energy end-use types to be installed at the same facility in both the ECB and EO programs. Our analysis revealed that between 2008 and 2011, 55% of all ECB comprehensive projects and 25% of all EO comprehensive projects contained at least improvements to both lighting and HVAC end-uses (some projects contained a third or fourth end-use). It is likely that these equipment combinations present the most cost-effective energy efficiency opportunities across the widest segment of C&I customers. The evaluation team is currently exploring likely causes (drivers) of these combination choices as part of the EO process evaluation during in-depth interviews with program participants and vendors.

Other end-uses that were frequently installed together included lighting and motors/drives (30% and 25% in the ECB and EO programs respectively) and HVAC equipment and motors/drives (32% and 20% in the ECB and EO programs respectively). The proportion of HVAC-related measures is expected to be even higher than the data reveals, due to limited detail and consistency in measure end-use typing. In most cases, motor and variable speed drive end-uses in commercial buildings are likely parts of HVAC systems, typically comprising drive-power for HVAC circulation pumps or fans.

Table 3-1 and Table 3-2 list the top ten types of comprehensive projects within each program between 2008 and 2011.

Table 3-1. Top 10 Types of Comprehensive Projects within ECB program (2008-2011)

Type of project	Number of projects (N=555)	Percent of projects (N=555)
Lighting and HVAC equipment	124	22.3%
Lighting, HVAC equipment, and motors/drives	67	12.1%
Process improvements and air compressors	30	5.4%
Lighting, controls, HVAC equipment, and motors/drives	22	4.0%
HVAC and hot water equipment	20	3.6%
HVAC equipment and motors/drives	19	3.4%
Lighting, HVAC equipment, motors/drives, and other equipment	17	3.1%
Lighting and motors/drives	16	2.9%
HVAC and building envelop improvements	14	2.5%
Lighting and air compressors	14	2.5%

Table 3-2. Top 10 Types of Comprehensive Projects within EO program (2008-2011)

Type of project	Number of projects (N=458)	Percent of projects (N=458)
Lighting and HVAC equipment	44	9.6%
Lighting and motors/drives	43	9.4%
HVAC equipment and motors/drives	39	8.5%
Lighting and building controls	31	6.8%
Lighting and refrigeration equipment	25	5.5%
Lighting and custom projects	23	5.0%
Lighting, HVAC equipment, and motors/drives	22	4.8%
Building controls and HVAC equipment	21	4.6%
Building controls and motors/drives	16	3.5%
Lighting and other equipment	16	3.5%

Market Perspective

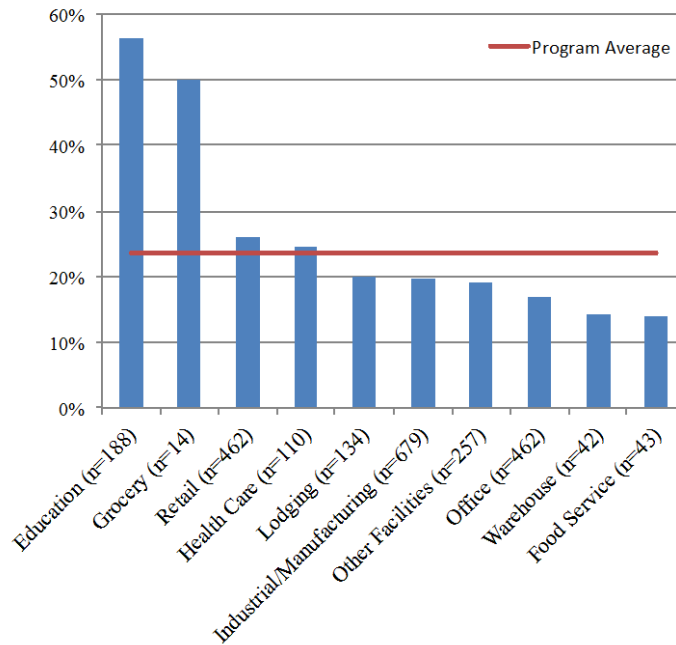
From a market perspective, comprehensive projects are concentrated in certain market segments during the period investigated. For each of those segments, EMI identified several trends within each program.

First, by comparison, the ECB program shows a significantly higher proportion of comprehensive projects than the EO program (24% vs. 14% comparatively). This difference is likely due to the greater opportunity to incorporate multiple energy efficiency measures in one process with less organizational resistance and lower overhead per measure in a new construction project. Thus, the evaluation team does not believe the difference is the result of any specific program mechanism.

Second, within the ECB program, EMI's research identified that education facilities, groceries, retail outlets, and health care facilities contain an above-average percentage of accounts that have improved more than one energy end-use. This finding suggests that the program has engaged these market segments more successfully than other segments. However, EMI recommends that the Companies should increase efforts at specifically engaging industrial and manufacturing facilities and investigate what types of comprehensive projects will be valuable for them. This is important, because although these facilities account for a large portion of the overall program participation and energy savings impact, comprehensive projects are relatively uncommon; only 20% of the industrial and manufacturing facilities that participated in the ECB program improved more than one end-use between 2008 and 2011. Potential comprehensive projects in the industrial sector will likely be different from those in the commercial sector, and often unique in composition. While commercial customers can naturally expand energy efficiency projects to include HVAC equipment, industrial customers are more likely to be interested in compressed air equipment, refrigeration systems, controls, process improvements, or some combination of these in addition to lighting.

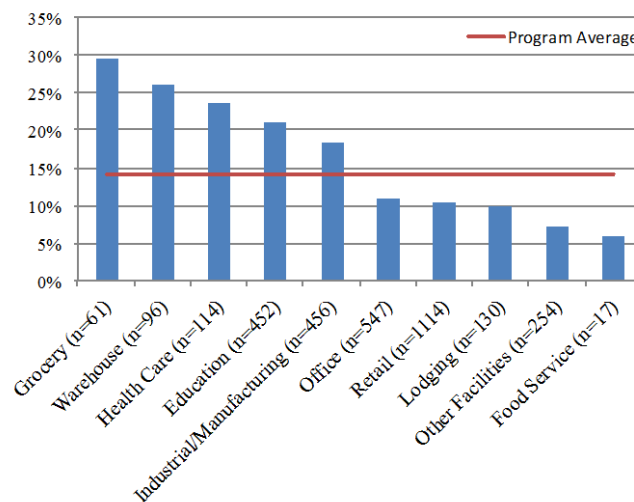
Figure 3-4 below illustrates the percentage of comprehensive projects by customer type for the ECB program.

Figure 3-4. Percentage of ECB Program Comprehensive Projects by Customer Type (2008-2011)



Within the EO program, the Companies should continue to engage groceries, warehouses, health care facilities, and educational facilities. Again, for each of those segments, the percentage of accounts that has improved more than one energy end-use is above the program's overall average. However, comprehensive projects are less frequently found in both office buildings and retail outlets. As of this report, it is difficult to determine whether this trend is the result of the program not leveraging existing opportunities or if, at offices and retail outlets, there are limited opportunities for cost-effectively retrofitting any systems beyond the lighting. Figure 3-5 below lists the percentage of comprehensive projects by customer type for the ECB program.

Figure 3-5: EO Program Comprehensive Projects by Customer Type (2008-2011)



3.3. Program Participant Market Characteristics

Historically, both the ECB and EO programs are mature programs that have an established record of engaging a wide variety of Connecticut commercial and industrial customers. Therefore, a continued goal of both the ECB and EO programs is to reach a “broad” set of C&I customers. To support this effort, EMI conducted a cross-sectional analysis of the program-tracking databases to identify successful trends among market segments for each program.

ECB Program Market Characteristics

Between 2008 and 2011, the ECB program most successfully engaged industrial and manufacturing facilities (29%), retail outlets (19%), and office buildings (18%). A cross-sectional analysis of kWh savings confirms this analysis; a majority of the savings also occurs within the industrial and retail market segments. These findings suggest that these C&I market segments are receptive to assistance offered by the ECB program and present an opportunity for further investment by the program. The evaluation team recommends that the program should continue its efforts to work with them.

Figure 3-6 and Figure 3-7 below illustrate the distribution of customer types by both participation counts and kWh energy savings.

Figure 3-6. ECB – Percentage of Participating Accounts by Customer Type (2008-2011)

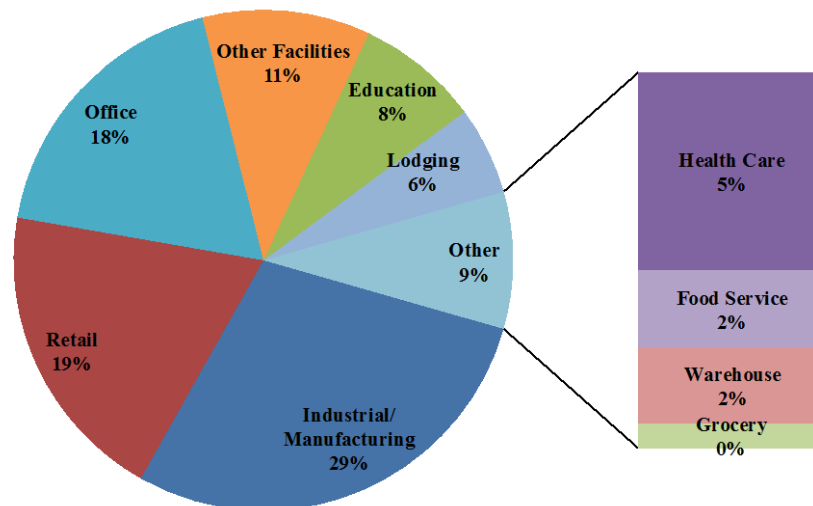
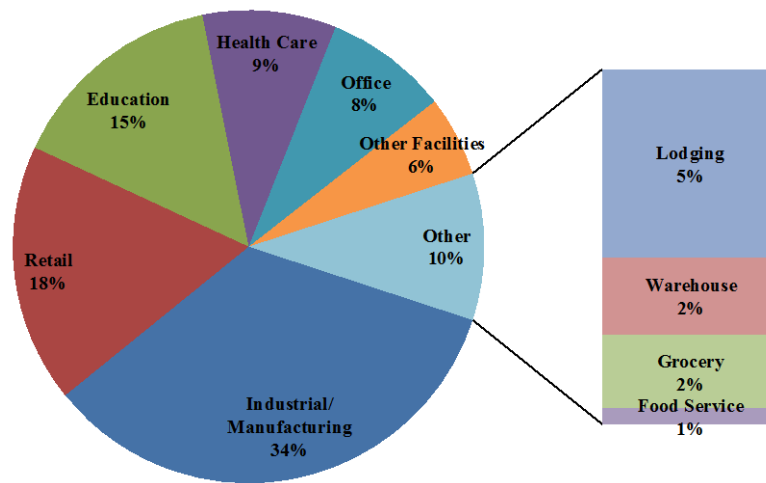


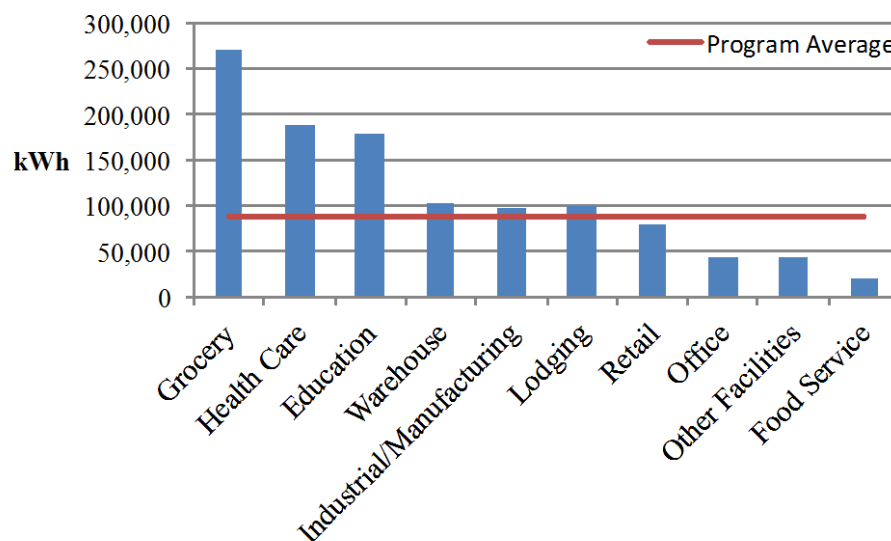
Figure 3-7. ECB – Percentage of Gross kWh Savings by Customer Type (2008-2011)



Other market segments (e.g., educational facilities, health care facilities) account for a smaller proportion of the ECB program participation. However, this finding does not suggest that the program's assistance is not attractive to these customers. Instead, these proportions reflect that there are a limited number of customers in these market segments and therefore, fewer opportunities for program participation. Likewise, as these customer types achieved higher-than-average kWh savings per account between 2008 and 2011, they present additional opportunities for the program to achieve cost-effective savings by maximizing the savings per account.

Figure 3-8 below illustrates the average kWh savings per account (groceries should be considered an outlier as only 14 groceries participated in ECB program between 2008 and 2011).

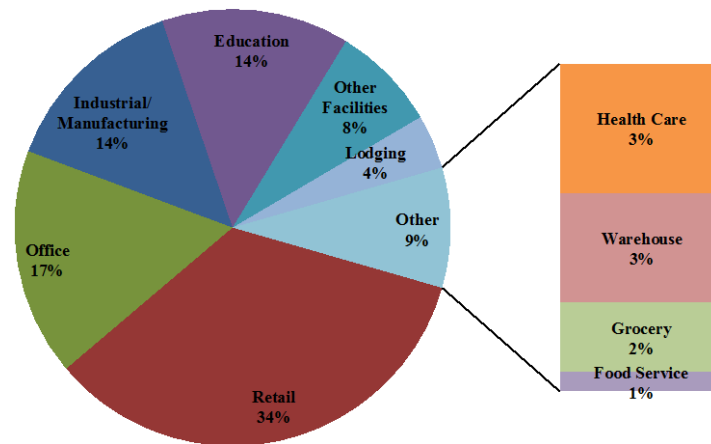
Figure 3-8. ECB - Average kWh Savings per Account (2008 -2011)



EO Program Market Characteristics

Between 2008 and 2011, the EO program successfully engaged retail outlets (34%) and office buildings (17%). A cross-sectional analysis of kWh savings confirms this analysis; a majority of the program savings also occurs within these two market segments. These findings suggest that both retail outlets and office buildings are receptive to improving their energy efficiency via retrofits and present an opportunity for further investment by the program. The evaluation team recommends that the program should continue its efforts to work with them. Figure 3-9 below lists the number of accounts from each market segment that has participated in the ECB program between 2008 and 2011.

Figure 3-9. EO – Percentage of Participating Accounts by Customer Type (2008-2011)



While retail and office spaces provided frequent opportunities for participation, the EO program should also focus on increasing participation among industrial and manufacturing customers. While these facilities make up only 14% of the participating accounts, they represent 28% of the overall kWh savings. Likewise, the average kWh savings at each account is double the program's average. As mentioned above, this trend is likely the result of the types of energy efficiency projects that are available at industrial and manufacturing plants and health care facilities such as comprehensive projects that address multiple end-uses that provide deep energy savings.

Figure 3-10 below illustrates the distribution of kWh savings by customer type and Figure 3-11 illustrates the average kWh savings per account by customer type.

Fig

11)

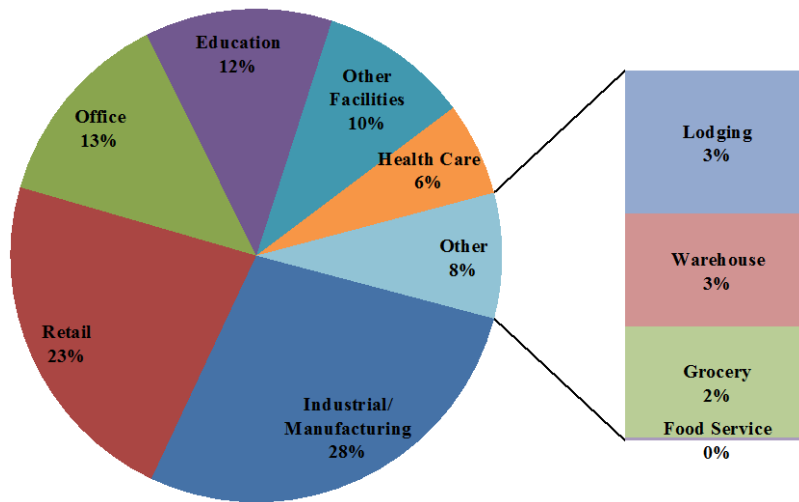
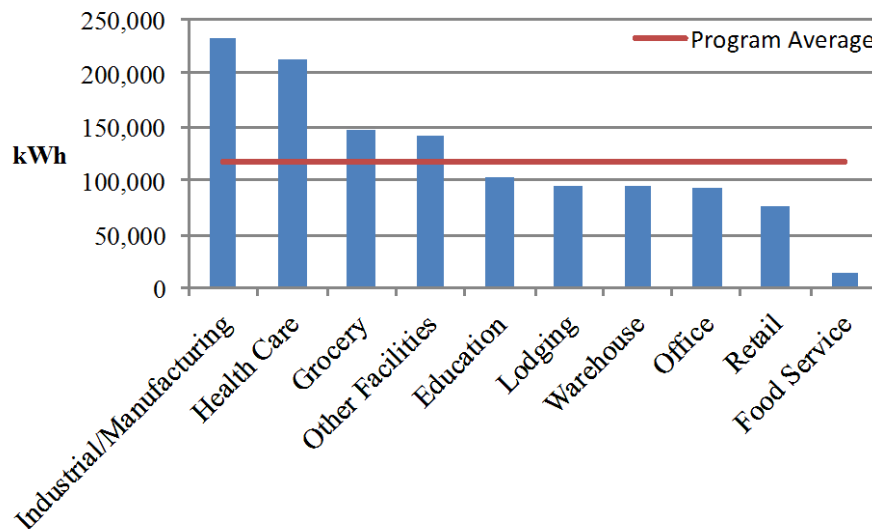


Figure 3-11. EO Average kWh Savings per Account (2008 -2011)



Possible Additional Market Characteristic Research

EMI’s analysis of these market characteristics of both the ECB and EO program is intended to provide high-level recommendations to guide future marketing and customer engagement efforts. For the EO program, the evaluation team will expand on these results as part of the process evaluation research currently underway. However, EMI believes that the Companies and the EEB could gain additional insight from a full market assessment study. A full market assessment would compare program participation against the population of eligible customers to highlight gaps in market penetration and additional potential for program savings. In addition, a market assessment could include primary research that would explore the energy efficiency needs of program non-participants (i.e., those that have not

participated in a program during the past ten years). EMI recommends that the Companies and the EEB consider this type of research for future program years and consider this study as the first phase in that effort.

3.4. Database Consistency and Completeness

While the files from each Company contained the data needed to conduct the analyses for the evaluations, the comprehensiveness, completeness, quality, and consistency varied. Ideally, in addition to knowing what utility and program the data represent, the minimum data needed to most effectively, efficiently, and accurately conduct the evaluations consists of:

- Detailed information on the measures that were installed using a limited standardized lexicon to describe measures, so that measures can readily be compared and classified
- Energy savings for each of the measures
- Information on the facility where the equipment was installed
- Contact information for conducting surveys

The evaluation team was ultimately able to compile this information from the data that was provided by the Company, but significant effort and resources needed to go into data management in order to do so.³ Also, various data quality, completeness, and consistency issues necessitated the use of extensive data cleaning and editing, as well as the use of assumptions to reclassify certain cases – all of which can detract from the overall accuracy of an evaluation and therefore, the usefulness of its results.

The following section outlines the information needed to conduct the evaluations, including the status of the provided data and data-related recommendations that can improve the efficiency and accuracy of future evaluation efforts.

Unique project identifier: Both utilities' files contained complete, consistent, and unique project identifiers. While not an evaluation issue, each utility uses different formats (UI: 4-character alpha-numeric; NU: 8-character alpha-numeric).

Account number: The UI file contained complete and consistent 13-digit account numbers. The CL&P file contained various 4 to 11-digit numeric and text entries, missing, and clearly erroneous account numbers (e.g. 999999999, 123456, "CNG Gas", "New", etc.).

Recommendation: While consistency across Companies is not necessary, ensuring account numbers are complete, consistent, and accurate within each Company's database is important for allowing identification and aggregation.

Project address (street, town, and zip code): The UI file contained complete and consistent addressing. The NU file contained complete but inconsistent addressing (e.g. use of Avenue, AVE, Ave, Ave.).

Recommendation: Use consistent US Postal Service addressing standards.⁴ Often, because account numbers do not identify unique facilities, addresses are needed to aggregate data. When dealing with thousands of cases, editing and cleaning addresses in order to conduct an aggregation is greatly hampered by typographical inconsistencies. Another, more effective option

³ For this study, EMI estimates that this task took between 30-50 hours at a cost of between \$4,000 and \$6,000.

⁴ US Postal Service addressing standards: (<http://pe.usps.com/text/pub28/welcome.htm>)

is to incorporate a premise number into the program databases which uniquely identifies facilities. However, this addition may be cost-prohibitive due to the need to alter existing database structures.

Project contact information: In general, both utilities collected first name, last name, position, and email. However, both utilities also presented projects missing critical phone numbers.

Recommendation: As much as possible, collect phone number, first name, last name, position, and email addresses for all projects. At a minimum, a contact phone number is needed to include a project in any evaluation-related sampling effort (though comprehensive email addresses could be used for a web-based survey). In addition, tracking a project contact name (first and last) and their position allows the evaluation team to easily contact the appropriate decision-maker and including email addresses makes inexpensive and efficient web-based surveys a feasible research method.

Project completion or closing date: The CL&P file contained only the “AFP Date” at the measure level. The UI files contained 12 different dates tracking the progress of measures; for the evaluation EMI used the installation date.

Recommendation: Record common project milestone dates including application, installation, and closed dates. Comprehensive and detailed project (or measure) tracking information can be useful for informing the improvement of project implementation by highlighting stages where projects are consistently delayed.

Energy savings (where applicable, kWh, KW, and Therms): Both Company data files contained measure level energy savings values reported in the same units. While not critical for the evaluations, UI reported these as negative values savings; NU reported them as positive values.

Facility type: The UI data contained specific facility type descriptions. The CL&P data did not present easily accessible facility type descriptions, but the file did include SIC, NAICS, and an industry-type variable describing the facility.

Table 3-3 presents some of the data inconsistencies present in the CL&P data in terms of the variables used to define facility type. Overall, the NAICS codes provided the greatest level of resolution and were the preferred method for determining facility type; however, as shown in Table 3-3, 620 cases did not have NAICS codes. For 446 of these 620 cases, the SIC code was used in conjunction with the industry-type code to categorize the facilities as best possible; for 174 cases only the SIC code was available to inform the categorization.

Table 3-3. Summary of CL&P Variables Used for Defining Facility Type

Data Present in File	N
Valid Facility Type	3,121
Only SIC	174
Industry Type & SIC	446
NAICS & SIC	1,367
Industry Type & NAICS & SIC	9,147
TOTAL	14,255

Recommendation: Because much of the evaluation work occurs at the facility level, a clear, consistent, and comprehensive presentation of the nature of the facility use should be readily available in the data files.

Measure Descriptive Information: The UI data contained variables representing the measure code, a measure description, measure type, and quantity installed. The CL&P data contained variables for the measure description and measure type (i.e. benefit type). For both Companies, this information was complete. However, the information was not consistent across Companies and measure description detail varied greatly in quantity and quality. In many cases, a project measure description consisted of simply a model number or a general term like “RTU.” Also, the quantities reported by both Companies are not adequate for evaluation purposes (e.g. at the measure type level, lighting entries always reported a quantity of “1” regardless of the number of bulbs or fixtures installed).

Recommendation: Present measure level information consistently. Ideally, use consistent measure or product codes and measure type classifications (e.g. lighting, lighting controls, other controls, HVAC, compressors, motors & drives, refrigeration, building envelope, hot-water heating, etc.). Ensure quantities reflect the actual number of units of a particular measure installed. For example, including an indication of the number of bulbs actually installed would allow for more accurate reporting and evaluation.

4. RECOMMENDATIONS

The evaluation team recommends that the Companies should continue to focus on adding improvements to HVAC systems and motors and drives in addition to any cost-effective lighting improvements (including lighting controls). Per the program-tracking database, improvements to lighting and HVAC are most likely to be installed at the same facility in both the ECB and EO programs. Our analysis revealed that between 2008 and 2011, 55% of all ECB comprehensive projects and 25% of all EO comprehensive projects contained at least improvements to both lighting and HVAC end-uses (some projects contained a third or fourth end-use). It is likely that these equipment combinations present the most cost-effective energy efficiency opportunities across the widest segment of C&I customers.

The evaluation team recommends that the Companies consider encouraging industrial and manufacturing facilities to complete additional comprehensive projects as a part of the ECB program. The Companies should consider increasing efforts at engaging these facilities and investigate what types of comprehensive projects will be valuable for them. EMI’s research identified that these facilities account for a large portion of the overall program participation and energy savings impact but that comprehensive projects are relatively infrequently; only 20% of the industrial and manufacturing facilities that participated in the ECB program improved more than one end-use between 2008 and 2011.

The evaluation team recommends that the Companies should continue to encourage institutional facilities to complete projects as part of the ECB program. This program has been very successful in gaining participation of educational facilities and health care facilities, and staff should expand their engagement of these sectors. While these segments account for a smaller proportion of the ECB program participation, these customer types achieved higher-than-average kWh savings per account between 2008 and 2011. This suggests that they present additional opportunities for the program to achieve cost-effective savings by maximizing the energy savings per account. In addition, given that these facilities typical have long operating hours, high and predictable occupancy rates, and high construction and remodeling standards, they are prime candidates for comprehensive project investment.

The evaluation team recommends that the Companies consider targeting retail outlets and office buildings as part of the comprehensive initiative within the EO program. EMI's research found that the EO program frequently engages both retail outlets and office buildings and that these segments account for a significant portion of the program's energy savings. However, comprehensive projects are less frequent in both of these market segments. Given that both segments account for a significant portion of the participating projects and therefore, present an opportunity for growth, the Companies should investigate whether targeting these facilities would be a cost-effective method for increasing comprehensive projects, considering that there may be limited opportunities for comprehensive projects given the nature of retail and office building operations.

While retail and office spaces provided frequent opportunities for participation, the EO program should also consider efforts that would increase participation among industrial and manufacturing customers. While these facilities make up only 14% of the participating accounts, they represent 28% of the overall kWh savings. Likewise, the average kWh savings at each account is double the program's average. Increasing participation among this sector should allow the program to operate more cost-effectively by increasing the energy savings per customer⁵.

The evaluation team recommends that the Companies agree upon and use a single, consistent system of data classes for program tracking. Aggregation, analysis and comparison of the utilities' efficiency project databases were substantially limited by a lack of consistent reporting methods and practice, both within each program and across them. An agreement to adopt a common classification scheme and lexicon across the State for projects, measures, customers, and facility types, etc. would be very valuable in helping the EEB evaluate program outcomes and allow the Companies to market the programs more effectively. The evaluation team suggests the following improvements to consistency:

- Use consistent US Postal Service addressing standards including separate fields for facility name, street address, city, and zip code. Another option is to incorporate a premise number into the program databases that uniquely identifies facilities. This addition would eliminate the need to aggregate and manage the program data based on address information and instead, provide a clear method for aggregation and analysis of specific locations for both program managers and evaluators. However, this addition may be cost-prohibitive due to the need to alter existing database structures.
- As much as possible, collect phone number, first name, last name, position, and email addresses of an appropriate contact for all projects.
- Record common project milestone dates including dates for application completion, installation, and closed dates (as applicable).
- Consistently record a NAICS code or similar code to provide a clear, consistent, and comprehensive presentation of the nature of the facility for each project.
- Ensure quantities reflect the actual number of units of a particular measure installed. Present consistent measure-level information including measure or product descriptions and "measure type" classifications such as lighting equipment, lighting controls (e.g., daylight sensors, occupancy sensors), building controls, HVAC equipment, compressors, motors & drives, refrigeration equipment, building envelope improvements, process improvements, and hot-water heating equipment. This consistency might be practically implemented via data-entry lexicon controls such as the use of "pick-lists." Currently, the project tracking databases often grouped like measures together as part of the same record (e.g., both lighting equipment and lighting controls are recorded as part of the same record). This grouping artificially limits the level of

⁵ This recommendation assumes that the program administrators' costs of enrolling customers is relatively similar across customer type.

detail possible for analysis of individual equipment attributes such as energy savings, quantities, and incentives. An alternative method of tracking projects would include equipment detail at the line item level as based on the application paperwork. This level of detail would allow for more detailed analysis of the project tracking data which would in turn support more targeted program marketing and more robust evaluation research.

Note that EMI did not investigate the amount of resources that would be required to implement these changes. Therefore, the Companies should balance the benefits of making these recommended changes with the costs of altering databases and data collection forms.

The evaluation team recommends that the Companies and the EEB pursue a full market assessment. EMI's analysis of these market characteristics of both the ECB and EO program participants is intended to provide high-level recommendations to guide future marketing and customer engagement efforts. These will be expanded upon as part of the process evaluation research currently underway. However, EMI believes that a full market assessment would provide greater insight by highlighting gaps in market penetration and additional potential for program savings. In addition, a market assessment could include primary research that would explore the energy efficiency needs of program non-participants (*i.e.*, those that have not participated in a program during the past 10 years).

Appendix A: DETAILED TABLES

Table A-1. Number of Projects and Expenditures by Program by Year

Program	Year	Number of Projects	Expenditures (\$MM)
Energy Conscious Blueprint	2008	761	\$23,171,577
	2009	574	\$13,076,152
	2010	683	\$15,655,660
	2011	627	\$15,384,314
Energy Opportunities	2008	719	\$32,811,449
	2009	920	\$16,391,765
	2010	1,071	\$24,125,529
	2011	1,112	\$31,710,409

Table A-2. Annual MWh and Expenditures by Program by Year

Program	Year	Annual MWh	Expenditures (\$MM)
Energy Conscious Blueprint	2008	67,626	\$21,882,500
	2009	41,372	\$11,093,483
	2010	35,418	\$13,303,304
	2011	34,781	\$11,406,295
Energy Opportunities	2008	114,529	\$32,684,705
	2009	77,064	\$15,020,713
	2010	87,753	\$23,224,314
	2011	87,447	\$28,602,910

Table A-3. Coincident kW and Expenditures by Program by Year

Program	Year	Annual kW	Expenditures (\$MM)
Energy Conscious Blueprint	2008	12,268	\$21,882,500
	2009	7,831	\$11,093,483
	2010	6,078	\$13,303,304
	2011	5,881	\$11,406,295
Energy Opportunities	2008	18,986	\$32,684,705
	2009	10,067	\$15,020,713
	2010	11,026	\$23,224,314
	2011	10,462	\$28,602,910

Table A-4. Annual Therms and Expenditures by Program by Year

Program	Year	Annual Therms	Expenditures
Energy Conscious Blueprint	2008	96,598	\$1,289,077
	2009	181,701	\$1,982,669
	2010	418,107	\$2,352,356
	2011	533,079	\$3,978,019
Energy Opportunities	2008	74,746	\$126,744
	2009	732,385	\$1,371,052
	2010	408,363	\$901,215
	2011	611,002	\$3,107,499

Table A-5. Comprehensive Projects (Projects with >1 Measure Type) by Program by Year

Program	Year	Number of Projects with One Measure Type	Number of Projects with Two Measure Types	Number of Projects with Three Measure Types	Number of Projects with Four or More Measure Types
Energy Conscious Blueprint	2008	601	69	54	37
	2009	454	79	27	14
	2010	590	63	18	12
	2011	521	73	24	9
Energy Opportunities	2008	653	43	11	12
	2009	844	64	8	4
	2010	980	60	20	11
	2011	991	96	17	8

Table A-6. Number of Projects by Program by Customer Type by Year

Program	Year	Education	Food Service	Grocery	Health Care	Industrial/ Manufacturing	Lodging	Office	Other Facilities	Retail	Warehouse
Energy Conscious Blueprint	2008	71	14	5	23	278	47	127	83	87	26
	2009	53	12	2	41	187	39	114	53	72	1
	2010	44	10	6	44	168	31	122	80	166	12
	2011	52	7	2	25	176	30	110	54	165	6
Energy Opportunities	2008	91	12	24	27	183	41	104	73	134	30
	2009	74	3	39	31	152	52	152	87	270	60
	2010	233	1	7	46	124	38	154	60	397	11
	2011	174	1	20	39	154	24	195	61	438	6

Table A-7. Annual kWh by by Program by Customer Type by Year

Program	Year	Education	Food Service	Grocery	Health Care	Industrial / Manufacturing	Lodging	Office	Other Facilities	Retail	Warehouse
Energy Conscious Blueprint	2008	13,736,971	456,056	2,283,213	1,357,007	21,460,904	5,208,601	4,733,688	3,297,647	11,626,056	3,466,136
	2009	7,868,581	107,871	26,055	6,498,531	11,882,699	1,520,243	4,761,527	3,264,950	5,438,617	3,089
	2010	2,988,809	39,620	557,876	3,521,214	14,385,110	1,484,663	4,073,567	1,669,663	6,601,376	96,506
	2011	2,192,377	226,348	571,472	999,319	15,441,578	1,613,474	2,484,672	1,556,231	9,383,069	312,850
Energy Opportunities	2008	9,043,400	116,835	3,275,127	6,235,447	44,296,214	3,052,728	11,013,203	15,405,679	17,419,710	4,671,142
	2009	6,292,770	44,638	4,010,479	6,610,378	17,429,809	3,887,327	12,414,270	9,067,943	14,394,277	2,911,968
	2010	17,593,248	37,767	682,433	6,347,598	15,074,454	3,129,602	11,635,071	5,717,453	26,971,036	564,022
	2011	12,348,673	61,883	1,322,695	7,415,691	23,776,376	1,355,305	12,214,707	5,704,685	22,169,497	1,077,610

Table A-8. Annual Peak kW by Program by Customer Type by Year

Program	Year	Education	Food Service	Grocery	Health Care	Industrial / Manufacturing	Lodging	Office	Other Facilities	Retail	Warehouse
Energy Conscious Blueprint	2008	3,593	82	309	205	2,786	679	967	396	2,551	700
	2009	1,750	52	4	905	1,305	348	1,232	792	1,441	1
	2010	972	14	84	490	1,942	420	500	292	1,299	64
	2011	750	23	115	216	1,503	238	750	292	1,931	63
Energy Opportunities	2008	2,155	4	360	543	6,525	436	2,034	1,900	3,666	1,365
	2009	1,180	13	281	857	2,035	526	1,855	1,027	1,892	402
	2010	2,007	3	72	813	2,322	234	1,407	545	3,551	73
	2011	2,200	21	139	948	2,384	86	1,360	515	2,674	135

Table A-9. Annual Therm Savings by Program by Customer Type by Year

Program	Year	Education	Food Service	Grocery	Health Care	Industrial / Manufacturing	Lodging	Office	Other Facilities	Retail	Warehouse
Energy Conscious Blueprint	2008	17,306	365	0	9,402	4,243	40,332	16,390	2,629	4,865	1,067
	2009	25,232	0	0	17,200	29,383	57,930	47,082	3,730	1,144	0
	2010	28,673	2,160	0	37,338	69,779	46,366	40,723	125,713	65,523	1,834
	2011	126,427	667	0	9,672	45,120	85,579	99,257	39,874	126,484	0
Energy Opportunities	2008	2,644	0	0	33,242	38,860	0	0	0	0	0
	2009	885	0	0	130,846	473,362	13,177	96,031	10,011	8,073	0
	2010	91,314	0	0	20,756	62,963	36,195	67,316	11,010	118,807	0
	2011	264,314	0	0	89,075	132,029	0	81,733	12,584	31,266	0

Appendix B: DATA CLASSIFICATION SYNTAX

The following appendix provides the SPSS syntax used to sort and classify both the measure categories and facility types.⁶ In general, this syntax follows rules based on measure information included in the program tracking data. However, the evaluation team used some custom, project-specific rules to handle exceptions.

```
***Create New Measure Categories***.  
Numeric  
LtgE  
LtgC  
Ctrl  
Proc  
Cmp  
Rfrg  
HVACH  
HVACC  
BldI  
MD  
Othr  
Cust  
Adm  
HW (f2.0).  
  
String Tag (a50).  
  
***Convert fields to upper case***.  
Compute Measure = UPPER(Measure).  
Compute UseCode = UPPER(UseCode).  
Compute ProjectName = UPPER(ProjectName).  
Compute utility = UPPER(utility).  
Compute Program = upper(Program).
```

⁶ Developed using IBM SPSS Statistics version 20.0

*Compute FacilityType = upper(FacilityType).
execute.*

****Measure Category Classifications***.*

***Hot Water**.*

DO IF (UseCode = "HOT WATER").

Compute HW = 1.

***Refrigeration**.*

*ELSE IF (INDEX(Measure,"REFRIGER") GT 0 AND INDEX(Measure,"LIGHT") = 0 AND
INDEX(Measure,"LED") = 0 AND INDEX(Measure,"DRYER") = 0 AND INDEX(Measure,"ECM") = 0).*

Compute Rfrg = 1.

*ELSE IF (INDEX(Measure,"VFD") GT 0 AND INDEX(Measure,"CHILL") GT 0 AND
(INDEX(UseCode,"PROCESS") = 0 AND INDEX(UseCode,"POR") = 0)).*

Compute HVACC = 1.

Compute Tag = "VFD".

*ELSE IF (INDEX(Measure,"CHILL") GT 0 AND (INDEX(UseCode,"PROCESS") GT 0 OR
INDEX(UseCode,"POR") GT 0)).*

Compute Rfrg = 1.

*ELSE IF (INDEX(Measure,"COMP") GT 0 AND INDEX(Measure,"REFRIG") GT 0 AND
(INDEX(UseCode,"PROCESS") GT 0 OR INDEX(UseCode,"POR") GT 0)).*

Compute Rfrg = 1.

****CO2 Controls***.*

ELSE IF (INDEX(Measure,"CO2") GT 0).

Compute Ctrl = 1.

Compute Tag = "CO2".

ELSE IF (INDEX(Measure,"CO SENS") GT 0).

Compute Ctrl = 1.

ELSE IF (INDEX(Measure,"HVAC CONTROL") GT 0).

Compute Ctrl = 1.

Compressed Air.*

ELSE IF (INDEX(Measure,"AIR") GT 0 AND INDEX(Measure,"COMP") GT 0).
 Compute Cmp = 1.
 ELSE IF (INDEX(Measure,"AIR DRYER") GT 0).
 Compute Cmp = 1.
 ELSE IF (INDEX(Measure,"COMPRESS") GT 0 AND (INDEX(UseCode,"REFRIGERAT") = 0 AND
 INDEX(UseCode,"REF") = 0 AND INDEX(UseCode,"COOL") = 0 AND INDEX(UseCode,"COL") = 0)).
 Compute Cmp = 1.
 ELSE IF (INDEX(Measure,"RECEIV") GT 0 OR INDEX(Measure,"DRYER") GT 0) AND
 (INDEX(UseCode,"PROCESS") GT 0 OR INDEX(UseCode,"POR") GT 0).
 Compute Cmp = 1.
 ELSE IF (INDEX(Measure,"FIX") GT 0 OR INDEX(Measure,"REPAIR") GT 0) AND INDEX(Measure,"LEAK")
 GT 0 AND (INDEX(UseCode,"PROCESS") GT 0 OR Index(UseCode,"POR") GT 0).
 Compute Cmp = 1.
 ELSE IF (INDEX(Measure,"REFRIGER") GT 0 AND INDEX(Measure,"DRYER") GT 0).
 Compute Cmp = 1.

VFD/VSDs:
 ELSE IF (INDEX(Measure,"VFD") GT 0 OR INDEX(Measure,"VSD") GT 0 OR INDEX(Measure,"VARIABLE")
 GT 0 OR INDEX(Measure,"DRIV") GT 0).
 Compute MD = 1.
 Compute Tag = "VFD".

Motors:
 ELSE IF (INDEX(Measure,"MOTOR") GT 0).
 Compute MD = 1.
 ELSE IF (INDEX(Measure,"ECM") GT 0 AND INDEX(Measure,"REFRIGER") GT 0) OR
 (INDEX(Measure,"ECM") GT 0 AND INDEX(UseCode,"REFRIGERAT") GT 0).
 Compute MD = 1.

Other Measure-Specific:
 ELSE IF (INDEX(Measure,"EMS") GT 0 AND INDEX(Measure,"SYSTEMS") = 0).
 Compute Ctrl = 1.
 Compute Tag = "EMS".

ELSE IF (INDEX(Measure,"ENERGY MANAGEMENT SYSTEM") GT 0).
 Compute Ctrl = 1.
 Compute Tag = "EMS".
 ELSE IF (INDEX(Measure,"DIFF") GT 0 AND INDEX(Measure,"ENTH") GT 0).
 Compute HVACC = 1.
 ELSE IF (INDEX(Measure,"TRANSFORMER") GT 0).
 Compute Othr = 1.
 Compute Tag = "ET".
 ELSE IF (INDEX(Measure,"OCC") GT 0 AND INDEX(Measure,"SENS") GT 0) AND
 (INDEX(UseCode,"LIGHT") GT 0 OR INDEX(UseCode,"LTG") GT 0).
 Compute LtgC = 1.
 Compute Tag = "OC".
 ELSE IF (INDEX(Measure,"LIGHT") GT 0 AND INDEX(Measure,"CONTR") GT 0).
 Compute LtgC = 1.
 ELSE IF (INDEX(Measure,"DIM") GT 0 OR INDEX(Measure,"DAYLIGHT") GT 0) AND
 Index(UseCode,"LIGHT") GT 0.
 Compute LtgC = 1.
 ELSE IF (INDEX(Measure,"WINDOW") GT 0 OR INDEX(Measure,"GLAZING") GT 0).
 Compute BldI = 1.
 ELSE IF (INDEX(Measure,"INSULATION") GT 0).
 Compute BldI = 1.
 ELSE IF (INDEX(Measure,"ENVELOPE") GT 0).
 Compute BldI = 1.
 ELSE IF (INDEX(Measure,"COOL") GT 0 AND INDEX(Measure,"LIGHT") = 0 AND INDEX(Measure,"LED")
 = 0 AND (INDEX(UseCode,"PROCESS") = 0 AND INDEX(UseCode,"POR") = 0 AND
 INDEX(UseCode,"REFRIGERAT") = 0)).
 Compute HVACC = 1.
 ELSE IF (INDEX(Measure,"HVAC") GT 0 AND INDEX(Measure,"OCC") GT 0).
 Compute Ctrl = 1.
 ELSE IF (INDEX(Measure,"HOT WAT") GT 0).
 Compute HVACH = 1.

 General Classifications based on UseCode.

```

ELSE IF (INDEX(UseCode,"LIGHT") GT 0 OR INDEX(UseCode,"LTG") GT 0).
  Compute LtgE = 1.
ELSE IF (INDEX(UseCode,"PROCESS") GT 0 OR INDEX(UseCode,"POR") GT 0).
  Compute Proc = 1.
ELSE IF (INDEX(UseCode,"REFRIGERAT") GT 0 OR INDEX(UseCode,"REF") GT 0).
  Compute Rfrg = 1.
ELSE IF (INDEX(UseCode,"HEAT") GT 0 OR INDEX(UseCode,"HTG") GT 0 OR INDEX(UseCode,"DHW") GT
0).
  Compute HVACH = 1.
ELSE IF (INDEX(UseCode,"COOL") GT 0 OR INDEX(UseCode,"COL") GT 0).
  Compute HVACC = 1.
ELSE IF (INDEX(UseCode,"MOTOR") GT 0 OR INDEX(UseCode,"MOT") GT 0).
  Compute MD = 1.
ELSE IF (INDEX(UseCode,"ENV") GT 0).
  Compute BldI = 1.
ELSE IF (INDEX(UseCode,"CUS") GT 0).
  Compute Cust = 1.
ELSE IF (INDEX(UseCode,"OTHER") GT 0).
  Compute Othr = 1.
ELSE IF (INDEX(UseCode,"ADH") GT 0 OR INDEX(UseCode,"ADM") GT 0 OR INDEX(UseCode,"CMB") GT
0).
  Compute Adm = 1.
ELSE IF (INDEX(UseCode,"DSG") GT 0).
  Compute Adm = 1.
  Compute Tag = "DSG".
END IF.
execute.

```

****Manually recode Chilled Water VFDs***.*

```

DO IF (ProjectNumber = "CE06P130" AND Measure = "CHILLED WATER P-1 VFD CONTROL")
OR (ProjectNumber = "EA11C020" AND Measure = "CHILLED WATER PUMP VFD")
OR (ProjectNumber = "EA09P259" AND Measure = "CHILLED WATER PUMP VFDS")
OR (ProjectNumber = "WE09C019" AND Measure = "CHILLED WATER PUMP VFDS")

```

OR (ProjectNumber = "CE05C004" AND Measure = "CHILLED WATER PUMP VFD'S")
OR (ProjectNumber = "CE06P157" AND Measure = "CHILLED WATER PUMP VFD'S")
OR (ProjectNumber = "EA04P318" AND Measure = "CHILLED WATER PUMP VFD'S")
OR (ProjectNumber = "EA11C028" AND Measure = "CHILLED WATER VFD")
OR (ProjectNumber = "EA11P157" AND Measure = "CHILLED WATER VFD")
OR (ProjectNumber = "EA06P015" AND Measure = "CHILLED WATER VFD'S")
OR (ProjectNumber = "WE04P350" AND Measure = "VFD - CHILLED WATER PUMP")
OR (ProjectNumber = "WE06P046" AND Measure = "VFD - CHILLED WATER PUMPS")
OR (ProjectNumber = "WE09S126" AND Measure = "VFD ADDED, 125 HP CHILLED WTR PUMP")
OR (ProjectNumber = "WE06P117" AND Measure = "VFD CHILLED WATER PUMPS")
OR (ProjectNumber = "EA01C005" AND Measure = "VFD CONTROL FOR CHILLED WATER PUMPING")
OR (ProjectNumber = "WE08P102" AND Measure = "VFD CONTROL OF CHILL WATER PUMP")
OR (ProjectNumber = "EA04C013" AND Measure = "VFD CONTROL OF CHILLED H2O PUMPS")
OR (ProjectNumber = "CE04P293" AND Measure = "VFD CONTROL OF CHILLED WATER PUMPS")
OR (ProjectNumber = "CE06P067" AND Measure = "VFD CONTROL OF CHILLED WATER PUMPS")
OR (ProjectNumber = "WE05P145" AND Measure = "VFD CONTROL OF CHILLED WATER PUMPS")
OR (ProjectNumber = "WE09C027" AND Measure = "VFD CONTROL OF CHILLED WATER SYSTEM")
OR (ProjectNumber = "WE08P054" AND Measure = "VFD ON CHILLED PUMP")
OR (ProjectNumber = "CE07P013" AND Measure = "VFD ON CHILLED WATER PUMP")
OR (ProjectNumber = "WE11P104" AND Measure = "VFD ON CHILLED WATER PUMP")
OR (ProjectNumber = "WE10C005" AND Measure = "VFD ON CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P013" AND Measure = "VFD ON CHILLER WATER PUMP")
OR (ProjectNumber = "CE05C002" AND Measure = "VFDS - CHILLED WATER PUMPS")
OR (ProjectNumber = "WE04P047" AND Measure = "VFDS - CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P035" AND Measure = "VFD'S CHILLED WATER PUMP")
OR (ProjectNumber = "WE09P283" AND Measure = "VFDS CHILLED WATER PUMPS")
OR (ProjectNumber = "EA07P010" AND Measure = "VFDS FOR CHILLED WATER PUMPS")
OR (ProjectNumber = "CE04P281" AND Measure = "VFDS ON CHILLED WATER")
OR (ProjectNumber = "EA08P004" AND Measure = "VFD'S ON CHILLED WATER PUMPING SYSTEMS")
OR (ProjectNumber = "CE06P118" AND Measure = "VFDS ON CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P014" AND Measure = "VFDS ON CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P055" AND Measure = "VFDS ON CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P070" AND Measure = "VFDS ON CHILLED WATER PUMPS")

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OR (ProjectNumber = "CE09C001" AND Measure = "VFDS ON CHILLED WATER PUMPS")
OR (ProjectNumber = "WE09H002" AND Measure = "VFDS ON CHILLED WATER PUMPS")
OR (ProjectNumber = "CE02C001" AND Measure = "VFD'S ON CHILLED WATER PUMPS")
OR (ProjectNumber = "EA04P311" AND Measure = "VFD'S ON CHILLED WATER PUMPS")
OR (ProjectNumber = "WE04P055" AND Measure = "VFD'S ON CHILLED WATER PUMPS")
OR (ProjectNumber = "WE02C006" AND Measure = "VFDS ON PRIMARY CHILLED WATER PUMPS")
OR (ProjectNumber = "WE02C006" AND Measure = "VFDS ON PRIMARY CHILLED WATER PUMPS")
OR (ProjectNumber = "CE07P055" AND Measure = "VFDS ON WATER-COOLED CHILLERS").
Compute HVACC = $sysmis.
Compute MD = 1.
END IF.
execute.
```

```
Numeric MeasureCategory (f2.0).
If LtgE = 1 MeasureCategory = 1.
If LtgC = 1 MeasureCategory = 2.
If Ctrl = 1 MeasureCategory = 3.
If Proc = 1 MeasureCategory = 4.
If Cmp = 1 MeasureCategory = 5.
If Rfrg = 1 MeasureCategory = 6.
If HVACH = 1 MeasureCategory = 7.
If HVACC = 1 MeasureCategory = 8.
If BldI = 1 MeasureCategory = 9.
If MD = 1 MeasureCategory = 10.
If HW = 1 MeasureCategory = 11.
If Othr = 1 MeasureCategory = 12.
If Cust = 1 MeasureCategory = 13.
If Adm = 1 MeasureCategory = 14.
execute.
```

```
Value labels
MeasureCategory
1 "LtgE"
```

2 "LtgC"
3 "Ctrl"
4 "Proc"
5 "Cmp"
6 "Rfrg"
7 "HVACH"
8 "HVACC"
9 "BldI"
10 "MD"
11 "HW"
12 "Othr"
13 "Cust"
14 "Adm".

*** Assign SIC Descriptions ***.
String SIC_Description (a50).

If SIC = 152 SIC_Description = "General Building Contractors-residential".
If SIC = 244 SIC_Description = "Wood Containers".
If SIC = 283 SIC_Description = "Drugs".
If SIC = 285 SIC_Description = "Paints, Varnishes, Lacquers, Enamels, And Allied".
If SIC = 347 SIC_Description = "Coating, Engraving, And Allied Services".
If SIC = 362 SIC_Description = "Electrical Industrial Apparatus".
If SIC = 580 SIC_Description = "Eating And Drinking Places".
If SIC = 602 SIC_Description = "Commercial Banks".
If SIC = 623 SIC_Description = "Security And Commodity Exchanges".
If SIC = 702 SIC_Description = "Rooming And Boarding Houses".
If SIC = 801 SIC_Description = "Offices And Clinics Of Doctors Of Medicine".
If SIC = 811 SIC_Description = "Legal Services".
If SIC = 944 SIC_Description = "Administration Of Social, Human Resource And".
If SIC = 990 SIC_Description = "Nonclassifiable Establishments".
If SIC = 999 SIC_Description = "Nonclassifiable Establishments".

execute.

****For "nonclassifiable establishments," assign SIC to synagogue, Bed Bath & Beyond, Correctional Institutions, restaurant***.*

If ProjectNumber = "CE08L147" SIC = 154.

If ProjectNumber = "WE08H016" SIC = 571.

If ProjectNumber = "EA10P010" SIC = 922.

If ProjectNumber = "EA10P068" SIC = 922.

If ProjectNumber = "EA10P087" SIC = 922.

If ProjectNumber = "EA09L126" SIC = 581.

execute.

If SIC = 154 SIC_Description = "General Building Contractors-nonresidential".

If SIC = 571 SIC_Description = "Home Furniture And Furnishings Stores".

If SIC = 581 SIC_Description = "Eating And Drinking Places".

If SIC = 922 SIC_Description = "Public Order And Safety".

If SIC = 738 SIC_Description = "Miscellaneous Business Services".

execute.

****Manually assign NAICS Descriptions for unmatched NAICS codes (from 1997 or 2002) ***.*

**Note 56419 still unmatched, will be categorized by SIC*.*

If NAICSCode = "233" BE_NAICS_Description = "Building, developing, and general contracting".

If NAICSCode = "23311" BE_NAICS_Description = "Land Subdivision and Land Development".

If NAICSCode = "23321" BE_NAICS_Description = "Single Family Housing Construction".

If NAICSCode = "23331" BE_NAICS_Description = "Manufacturing and Industrial Building Construction".

If NAICSCode = "23411" BE_NAICS_Description = "Highway and Street Construction".

If NAICSCode = "23541" BE_NAICS_Description = "Masonry and Stone Contractors".

If NAICSCode = "23499" BE_NAICS_Description = "All Other Heavy Construction".

If NAICSCode = "23511" BE_NAICS_Description = "Plumbing, Heating, and Air-Conditioning Contractors".

If NAICSCode = "23531" BE_NAICS_Description = "Electrical Contractors".

If NAICSCode = "23551" BE_NAICS_Description = "Carpentry Contractors".

If NAICSCode = "23561" BE_NAICS_Description = "Roofing, Siding, and Sheet Metal Contractors".

If NAICSCode = "23571" BE_NAICS_Description = "Concrete Contractors".

If NAICSCode = "23591" BE_NAICS_Description = "Structural Steel Erection Contractors".
If NAICSCode = "23599" BE_NAICS_Description = "All other special trade contractors".
If NAICSCode = "31221" BE_NAICS_Description = "Tobacco stemming and redrying".
If NAICSCode = "31523" BE_NAICS_Description = "Women's and girls' cut and sew apparel manufacturing".
If NAICSCode = "421" BE_NAICS_Description = "Wholesale trade, durable goods".
If NAICSCode = "42111" BE_NAICS_Description = "Automobile and other motor vehicle wholesalers".
If NAICSCode = "42121" BE_NAICS_Description = "Furniture Wholesalers".
If NAICSCode = "42131" BE_NAICS_Description = "Lumber, plywood, millwork, and wood panel wholesalers".
If NAICSCode = "42151" BE_NAICS_Description = "Metal service centers and offices".
If NAICSCode = "42149" BE_NAICS_Description = "Other professional equipment and supplies wholesalers".
If NAICSCode = "42161" BE_NAICS_Description = "Electrical apparatus and equipment, wiring supplies, and construction material wholesalers".
If NAICSCode = "42171" BE_NAICS_Description = "Hardware wholesalers".
If NAICSCode = "42172" BE_NAICS_Description = "Plumbing and heating equipment and supplies (hydronics) wholesalers".
If NAICSCode = "42182" BE_NAICS_Description = "Farm and garden machinery and equipment wholesalers".
If NAICSCode = "42183" BE_NAICS_Description = "Industrial machinery and equipment wholesalers".
If NAICSCode = "42199" BE_NAICS_Description = "Other miscellaneous durable goods wholesalers".
If NAICSCode = "422" BE_NAICS_Description = "Wholesale trade, nondurable goods".
If NAICSCode = "42211" BE_NAICS_Description = "Printing and writing paper wholesalers".
If NAICSCode = "42221" BE_NAICS_Description = "Drugs and druggists' sundries wholesalers".
If NAICSCode = "42231" BE_NAICS_Description = "Piece goods, notions, and other dry goods wholesalers".
If NAICSCode = "42232" BE_NAICS_Description = "Men's & boys' clothing & furnishings whsle".
If NAICSCode = "4224" BE_NAICS_Description = "Grocery and related product wholesalers".
If NAICSCode = "4225" BE_NAICS_Description = "Farm product raw material wholesalers".
If NAICSCode = "4226" BE_NAICS_Description = "Chemical and allied products wholesalers".
If NAICSCode = "4227" BE_NAICS_Description = "Petroleum and petroleum products wholesalers".
If NAICSCode = "42281" BE_NAICS_Description = "Beer and ale wholesalers".
If NAICSCode = "4229" BE_NAICS_Description = "Miscellaneous nondurable goods wholesalers".
If NAICSCode = "44311" BE_NAICS_Description = "Appliance, television, and other electronics stores".
If NAICSCode = "44312" BE_NAICS_Description = "Computer and software stores".
If NAICSCode = "513" BE_NAICS_Description = "Broadcasting & telecommunications".
If NAICSCode = "5131" BE_NAICS_Description = "Radio and Television Broadcasting".

*If NAICSCode = "51321" BE_NAICS_Description = "Cable Networks".
If NAICSCode = "5133" BE_NAICS_Description = "Telecommunications".
If NAICSCode = "51412" BE_NAICS_Description = "Libraries & Archives".
execute.*

**Flag Other/Unable to Classify. These will be classified by NAICS or SIC if available*.
If FacilityType = "OTHER" FacilityTypeOther = 1.
If FacilityType = "UNABLE TO CLASS" FacilityTypeOther = 2.
execute.*

*If FacilityType = "OTHER" FacilityType = " ".
If FacilityType = "UNABLE TO CLASS" FacilityType = " ".
execute.*

****Assign CustomerType based on Facilitytype (Except for "other category" and "unable to class")***.
If FacilityType = "AGRICULTURAL" CustomerType = "OTHER FACILITIES".
If FacilityType = "APPAREL" CustomerType = "RETAIL".
If FacilityType = "AUTO RELATED" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "AUTOMOTIVE/SERV" CustomerType = "OTHER FACILITIES".
If FacilityType = "BAKERY" CustomerType = "FOOD SERVICE".
If FacilityType = "BANKS, FINANCIAL CENTERS" CustomerType = "OFFICE".
If FacilityType = "BUS. SERVICES" CustomerType = "OFFICE".
If FacilityType = "CHEMICALS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "CHURCH" CustomerType = "OTHER FACILITIES".
If FacilityType = "COLLEGE - CAFETERIA" CustomerType = "FOOD SERVICE".
If FacilityType = "COLLEGE - CLASSES/ADMINISTRATIVE" CustomerType = "EDUCATION".
If FacilityType = "COLLEGE - DORMITORY" CustomerType = "LODGING".
If FacilityType = "COLLEGE/UNIV." CustomerType = "EDUCATION".
If FacilityType = "COMMERCIAL CONDOS" CustomerType = "LODGING".
If FacilityType = "COMMUNICATIONS" CustomerType = "OFFICE".
If FacilityType = "CONSTRUCTION" CustomerType = "OFFICE".
If FacilityType = "CONVENIENCE STORES" CustomerType = "GROCERY".*

If FacilityType = "COURT HOUSE" CustomerType = "OFFICE".
If FacilityType = "DINING: BAR LOUNGE/LEISURE" CustomerType = "FOOD SERVICE".
If FacilityType = "DINING: CAFETERIA / FAST FOOD" CustomerType = "FOOD SERVICE".
If FacilityType = "EDUCATION" CustomerType = "EDUCATION".
If FacilityType = "ELEC. MACHINERY" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "ENGINEERING" CustomerType = "OFFICE".
If FacilityType = "ENTERTAINMENT" CustomerType = "RETAIL".
If FacilityType = "EXERCISE CENTER" CustomerType = "OTHER FACILITIES".
If FacilityType = "FABR. METALS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "FAST FOOD RESTAURANTS" CustomerType = "FOOD SERVICE".
If FacilityType = "FINANCE/INS/RE" CustomerType = "OFFICE".
If FacilityType = "FIRE STATION (UNMANNED)" CustomerType = "OTHER FACILITIES".
If FacilityType = "FOOD PROCESSING" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "FOOD STORES" CustomerType = "GROCERY".
If FacilityType = "FURNITURE" CustomerType = "RETAIL".
If FacilityType = "GOVERNMENT" CustomerType = "OFFICE".
If FacilityType = "GYMNASIUM" CustomerType = "OTHER FACILITIES".
If FacilityType = "HEALTH CARE" CustomerType = "HEALTH CARE".
If FacilityType = "HOSPITAL" CustomerType = "HEALTH CARE".
If FacilityType = "HOSPITALS" CustomerType = "HEALTH CARE".
If FacilityType = "HOSPITALS / HEALTH CARE" CustomerType = "HEALTH CARE".
If FacilityType = "INDUSTRIAL - 1 SHIFT" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "INDUSTRIAL - 2 SHIFT" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "INDUSTRIAL - 3 SHIFT" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "INSTRUMENTS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "LAUNDROMATS" CustomerType = "RETAIL".
If FacilityType = "LEGAL SERVICES" CustomerType = "OFFICE".
If FacilityType = "LIBRARY" CustomerType = "OTHER FACILITIES".
If FacilityType = "LIGHT MANUFACTURERS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "LODGING (HOTELS/MOTELS)" CustomerType = "LODGING".
If FacilityType = "LUMBER/WOOD" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "MALL CONCOURSE" CustomerType = "RETAIL".
If FacilityType = "MANUFACTURING FACILITY" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = "MEDICAL OFFICES" CustomerType = "HEALTH CARE".
If FacilityType = "MEMBERSHIP ORG" CustomerType = "OFFICE".
If FacilityType = "MISC COMMERCIAL" CustomerType = "RETAIL".
If FacilityType = "MISC SERVICES" CustomerType = "OFFICE".
If FacilityType = "MISC. MANUFACT" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "MISC. REPAIRS" CustomerType = "OTHER FACILITIES".
If FacilityType = "MISCELLANEOUS" CustomerType = "OTHER FACILITIES".
If FacilityType = "MOTEL/HOTEL" CustomerType = "LODGING".
If FacilityType = "MOTION PICTURE" CustomerType = "RETAIL".
If FacilityType = "MOTION PICTURE THEATRE" CustomerType = "RETAIL".
If FacilityType = "MULTI-FAMILY (COMMON AREAS)" CustomerType = "LODGING".
If FacilityType = "MUSEUM" CustomerType = "OTHER FACILITIES".
If FacilityType = "NON-ELEC MACH." CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "NURSING HOMES" CustomerType = "LODGING".
If FacilityType = "OFFICE (GENERAL OFFICE TYPES)" CustomerType = "OFFICE".
If FacilityType = "OFFICE/RETAIL" CustomerType = "OFFICE".
If FacilityType = "PAPER" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "PARKING GARAGES & LOTS" CustomerType = "OTHER FACILITIES".
If FacilityType = "PENITENTIARY" CustomerType = "LODGING".
If FacilityType = "PERFORMING ARTS THEATRE" CustomerType = "OTHER FACILITIES".
If FacilityType = "PETROLEUM" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "POLICE / FIRE STATIONS (24 HR)" CustomerType = "OTHER FACILITIES".
If FacilityType = "PRIMARY METALS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "PRIVATE HSE" CustomerType = "LODGING".
If FacilityType = "PUBLIC ADMIN" CustomerType = "OFFICE".
If FacilityType = "PUBLISHING" CustomerType = "OFFICE".
If FacilityType = "PUMP STATIONS" CustomerType = "OTHER FACILITIES".
If FacilityType = "RECREATION SERV" CustomerType = "OTHER FACILITIES".
If FacilityType = "REFRIGERATED WAREHOUSE" CustomerType = "WAREHOUSE".
If FacilityType = "RELIGIOUS BUILDING" CustomerType = "OTHER FACILITIES".
If FacilityType = "RESIDENTIAL (EXCEPT NURSING HOME)" CustomerType = "LODGING".
If FacilityType = "RESTAURANTS" CustomerType = "FOOD SERVICE".
If FacilityType = "RETAIL" CustomerType = "RETAIL".

If FacilityType = "RUBBER/PLASTICS" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "SCHOOL" CustomerType = "EDUCATION".
If FacilityType = "SCHOOL / UNIVERSITY" CustomerType = "EDUCATION".
If FacilityType = "SCHOOLS (JR./SR. HIGH)" CustomerType = "EDUCATION".
If FacilityType = "SCHOOLS (PRESCHOOL/ELEMENTARY)" CustomerType = "EDUCATION".
If FacilityType = "SERVICES" CustomerType = "RETAIL".
If FacilityType = "SMALL SERVICES" CustomerType = "RETAIL".
If FacilityType = "SOCIAL SERVICE" CustomerType = "OFFICE".
If FacilityType = "SPORTS ARENA" CustomerType = "OTHER FACILITIES".
If FacilityType = "STONE/CONCRETE" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "STREETLIGHTS" CustomerType = "OTHER FACILITIES".
If FacilityType = "TEXTILES" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "TOBACCO PRODUCT" CustomerType = "OTHER FACILITIES".
If FacilityType = "TOWN HALL" CustomerType = "OFFICE".
If FacilityType = "TRANSPORTATION" CustomerType = "OTHER FACILITIES".
If FacilityType = "UTILITY/SERV" CustomerType = "OTHER FACILITIES".
If FacilityType = "WAREHOUSE (NOT REFRIGERATED)" CustomerType = "WAREHOUSE".
If FacilityType = "WASTE WATER TREATMENT PLANT" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = "WHOLESALE" CustomerType = "WAREHOUSE".
If FacilityType = "WORKSHOP" CustomerType = "OTHER FACILITIES".
execute.

****For accounts without FacilityType, classify by NAICS Description***.*

If FacilityType = " " AND BE_NAICS_Description = "Administration of Environmental Quality Programs" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Administration of Housing Programs" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Advertising Agencies" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Aerospace Product and Parts Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Ambulatory Health Care Services" CustomerType = "HEALTH CARE".

If FacilityType = " " AND BE_NAICS_Description = "All Other Amusement and Recreation Industries" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "All Other Chemical Product and Preparation Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Electrical Equipment and Component Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Fabricated Metal Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Food Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other General Merchandise Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "All Other General Purpose Machinery Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Heavy Construction" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "All Other Miscellaneous Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "All Other Nonmetallic Mineral Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Alumina and Aluminum Production and Processing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Animal Slaughtering and Processing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Architectural Services" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Arts, Entertainment, and Recreation" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Asphalt Paving, Roofing, and Saturated Materials Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Automobile and other motor vehicle wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Automotive Repair and Maintenance" CustomerType = "OTHER FACILITIES".

If FacilityType = " " AND BE_NAICS_Description = "Beverage Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Bowling Centers" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Bread and Bakery Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Broadwoven Fabric Mills" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Carpentry Contractors" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Charter Bus Industry" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Chemical and allied products wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Civic and Social Organizations" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Clay Building Material and Refractories Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Colleges, Universities, and Professional Schools" CustomerType = "EDUCATION".
If FacilityType = " " AND BE_NAICS_Description = "Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Commercial Banking" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Computer and Peripheral Equipment Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Consumer Electronics and Appliances Rental" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Courts" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Credit Card Issuing" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Crop Production" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Department Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Direct Life, Health, and Medical Insurance Carriers" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Direct Mail Advertising" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Drugs and druggists' sundries wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Educational Services" CustomerType = "EDUCATION".
If FacilityType = " " AND BE_NAICS_Description = "Educational Support Services" CustomerType = "EDUCATION".
If FacilityType = " " AND BE_NAICS_Description = "Electric Lamp Bulb and Part Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Electric Power Generation, Transmission and Distribution" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Electrical apparatus and equipment, wiring supplies, and construction material wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Electrical Contractors" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Electrical Equipment Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Elementary and Secondary Schools" CustomerType = "EDUCATION".
If FacilityType = " " AND BE_NAICS_Description = "Executive and Legislative Offices, Combined" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Exterminating and Pest Control Services" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Fabricated Metal Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Family Clothing Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Farm and garden machinery and equipment wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Financial Transactions Processing, Reserve, and Clearinghouse Activities" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Food and Beverage Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Food Services and Drinking Places" CustomerType = "FOOD SERVICE".
If FacilityType = " " AND BE_NAICS_Description = "Footwear Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Fruit and Vegetable Preserving and Specialty Food Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Furniture and Home Furnishings Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Furniture and Related Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Gasoline Stations" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "General Freight Trucking, Local" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "General Medical and Surgical Hospitals" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "General Warehousing and Storage" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Grocery and related product wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Grocery Stores" CustomerType = "GROCERY".
If FacilityType = " " AND BE_NAICS_Description = "Hair, Nail, and Skin Care Services" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Hardware Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Hardware wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Health Care and Social Assistance" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Hotels (except Casino Hotels) and Motels" CustomerType = "LODGING".
If FacilityType = " " AND BE_NAICS_Description = "Individual and Family Services" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Industrial machinery and equipment wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Insurance Agencies and Brokerages" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Insurance and Employee Benefit Funds" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Iron and Steel Pipe and Tube Manufacturing from Purchased Steel" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Jewelry and Silverware Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Legal Services" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Legislative Bodies" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Lessors of Residential Buildings and Dwellings" CustomerType = "LODGING".

If FacilityType = " " AND BE_NAICS_Description = "Libraries & Archives" CustomerType = "OTHER FACILITIES".

If FacilityType = " " AND BE_NAICS_Description = "Lumber, plywood, millwork, and wood panel wholesalers" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = "Machine Shops" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Major Appliance Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Manufacturing and Industrial Building Construction" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Medical and Diagnostic Laboratories" CustomerType = "HEALTH CARE".

If FacilityType = " " AND BE_NAICS_Description = "Medical Equipment and Supplies Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Men's Clothing Stores" CustomerType = "RETAIL".

If FacilityType = " " AND BE_NAICS_Description = "Metalworking Machinery Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Miscellaneous nondurable goods wholesalers" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = "Motor Vehicle Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Motor Vehicle Metal Stamping" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Navigational, Measuring, Electromedical, and Control Instruments Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "New Car Dealers" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Newspaper Publishers" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Noncitrus Fruit and Tree Nut Farming" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Nonferrous Metal (except Aluminum) Smelting and Refining" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Nonferrous Metal Foundries" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Nonmetallic Mineral Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Nursing Care Facilities (Skilled Nursing Facilities)" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Offices of Dentists" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Offices of Other Health Practitioners" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Offices of Physicians" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Oil and Gas Extraction" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Other Amusement and Recreation Industries" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Other Automotive Repair and Maintenance" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Other Basic Inorganic Chemical Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Other Building Material Dealers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Other General Government Support" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Other Justice, Public Order, and Safety Activities" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Other miscellaneous durable goods wholesalers" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = "Other Plastics Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Other professional equipment and supplies wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Other Publishers" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Other Residential Care Facilities" CustomerType = "LODGING".
If FacilityType = " " AND BE_NAICS_Description = "Other Rubber Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Paint and Coating Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Paperboard Container Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Paperboard Mills" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Parking Lots and Garages" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Periodical Publishers" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Petroleum and petroleum products wholesalers" CustomerType = "WAREHOUSE".
If FacilityType = " " AND BE_NAICS_Description = "Petroleum Refineries" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Pharmacies and Drug Stores" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Plastics and Rubber Products Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Plate Work and Fabricated Structural Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Plumbing and heating equipment and supplies (hydronics) wholesalers" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = "Plumbing, Heating, and Air-Conditioning Contractors" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Printing" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Printing and writing paper wholesalers" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = "Public Administration" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Public Relations Agencies" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Radio and Television Broadcasting" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Ready-Mix Concrete Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Real Estate" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Real Estate Property Managers" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Regulation and Administration of Transportation Programs" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Religious Organizations" CustomerType = "OTHER FACILITIES".

If FacilityType = " " AND BE_NAICS_Description = "Resin and Synthetic Rubber Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = "Retail Trade" CustomerType = "RETAIL".

If FacilityType = " " AND BE_NAICS_Description = "Rooming and Boarding Houses" CustomerType = "LODGING".

If FacilityType = " " AND BE_NAICS_Description = "RV (Recreational Vehicle) Parks and Recreational Camps" CustomerType = "LODGING".

If FacilityType = " " AND BE_NAICS_Description = "Savings Institutions" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Securities and Commodity Contracts Intermediation and Brokerage" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Securities and Commodity Exchanges" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = "Semiconductor and Other Electronic Component Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Ship and Boat Building" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Social Advocacy Organizations" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Structural Steel Erection Contractors" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Sugar and Confectionery Product Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Support Activities for Printing" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Technical and Trade Schools" CustomerType = "EDUCATION".
If FacilityType = " " AND BE_NAICS_Description = "Telecommunications" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Textile and Fabric Finishing Mills" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Toilet Preparation Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Traveler Accommodation" CustomerType = "LODGING".
If FacilityType = " " AND BE_NAICS_Description = "Turned Product and Screw, Nut, and Bolt Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
If FacilityType = " " AND BE_NAICS_Description = "Used Car Dealers" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Utilities" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Veterinary Services" CustomerType = "HEALTH CARE".
If FacilityType = " " AND BE_NAICS_Description = "Video Tape and Disc Rental" CustomerType = "RETAIL".
If FacilityType = " " AND BE_NAICS_Description = "Vocational Rehabilitation Services" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = "Water, Sewage and Other Systems" CustomerType = "OTHER FACILITIES".
If FacilityType = " " AND BE_NAICS_Description = "Wood Container and Pallet Manufacturing" CustomerType = "INDUSTRIAL/MANUFACTURING".
execute.

****For cases without FacilityType or NAICS, assign CustomerType based on SIC****

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Administration Of Social, Human Resource And" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Coating, Engraving, And Allied Services" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Commercial Banks" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Drugs" CustomerType = "WAREHOUSE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Eating And Drinking Places" CustomerType = "FOOD SERVICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Electrical Industrial Apparatus" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "General Building Contractors-nonresidential" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "General Building Contractors-residential" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Home Furniture And Furnishings Stores" CustomerType = "RETAIL".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Legal Services" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Miscellaneous Business Services" CustomerType = "OFFICE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Nonclassifiable Establishments" CustomerType = "OTHER FACILITIES".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Offices And Clinics Of Doctors Of Medicine" CustomerType = "HEALTH CARE".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Paints, Varnishes, Lacquers, Enamels, And Allied" CustomerType = "INDUSTRIAL/MANUFACTURING".

If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Public Order And Safety" CustomerType = "OTHER FACILITIES".

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If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Rooming And Boarding Houses" CustomerType = "LODGING".
If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Security And Commodity Exchanges" CustomerType = "OFFICE".
If FacilityType = " " AND BE_NAICS_Description = " " AND SIC_Description = "Wood Containers" CustomerType = "INDUSTRIAL/MANUFACTURING".
execute.
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*Classify Others or Unable to Class FacilityTypes. Restore FacilityType category.*.
DO IF FacilityTypeOther = 1 AND CustomerType = " ".
Compute CustomerType = "OTHER FACILITIES".
Compute FacilityType = "OTHER".
ELSE IF FacilityTypeOther = 2 AND CustomerType = " ".
Compute CustomerType = "OTHER FACILITIES".
Compute FacilityType = "OTHER".
END IF.
execute.
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If FacilityTypeOther = 1 FacilityType = "OTHER".
If FacilityTypeOther = 2 FacilityType = "UNABLE TO CLASS".
execute.
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