PROCESS EVALUATION REPORT FOR CON EDISON'S AND ORANGE & ROCKLAND UTILITIES' SMALL BUSINESS DIRECT INSTALLATION PROGRAM

Prepared for:

Con Edison and Orange & Rockland

Navigant Consulting, Inc.
1717 Arch Street
Suite 4800
Philadelphia, PA 19103
215.832.4400
www.navigantconsulting.com

KEMA Consulting
122 West Washington Ave,
Suite 1000
Madison, WI 53703
608.259.9152
www.kema.com

August 19, 2011 (Revised January 6, 2014)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report presents the results of the process evaluation for the Small Business Direct Install programs administered by Con Edison and Orange & Rockland (O&R) as part of their Energy Efficiency Portfolio Standard (EEPS), as ordered by the New York Public Service Commission (DPS). The results of this process evaluation are based on research conducted through June 2011. A preliminary findings presentation was conducted to provide early feedback to program staff. All energy savings achievements in this report are ex ante, and have not been confirmed by an independent impact evaluator.

Con Edison and O&R designed the SBDI programs for rapid deployment of energy efficiency measures to existing small commercial and industrial (C&I) customers. Both companies defined small C&I customers as those with facilities that have an average monthly peak demand of less than 100 kilowatts (kW). The SBDI program provides free on-site energy surveys, direct installation of free low-cost efficiency measures, and paid measures at customer cost of 30 percent of installed measure cost. During the study period, Willdan was the implementation contractor for O&R and Con Edison; Free Lighting also provides contractor services for Con Edison.

The majority of SBDI program energy savings (more than 75 percent) for both utilities are related to the installation of linear fluorescent measures. Approximately 20 percent is comprised of a combination of free and reduced cost compact fluorescent light bulbs. The remainder is related to other lighting measures (e.g., LED exit signs, occupancy sensors). Less than one percent of Con Edison and O&R program savings are related to non-lighting measures (e.g. water pipe insulation, vending machine controls).

Table ES1 and Table ES2 summarize the SBDI program savings goals and reported achievements for Con Edison and O&R, respectively.

Table ES1. Con Edison–SBDI Goals and Reported Achievements[1]

	Program Goal 2009 – 2011	Progress through June 2011	Percent of Goal Achieved
Number of Surveys	16,922	22,185	131%
Savings (MWh)	289,875	99,359	34%
Coincident Peak Savings (MW)	51	25	49%

Source: Con Edison Monthly Scorecard (June 2011)

Table ES2. O&R–SBDI Goals and Reported Achievements[2]

	Program Goal 2009 – 2011	Progress through June 2011	Percent of Goal Achieved
Number of Surveys	2,005	1,879	94%
Savings (MWh)	34,345	10,878	32%
Coincident Peak Savings (MW)	6	3	50%

[1] The Con Edison SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 221,225 MWh.

[2] The O&R SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 23,454 MWh.

Source: O&R Monthly Scorecards through June 2011

EVALUATION OBJECTIVES AND ACTIVITIES

The overall objective of the SBDI process evaluation is to assess the effectiveness and efficiency of program design, delivery and implementation processes. The research and the findings expressed in this report are based upon review of program materials and databases, in-depth interviews with many different stakeholders (including utility staff, program implementers, participants and non-participants) and telephone surveys with participating and non-participating customers. Finally, an evaluator participated in ride-alongs with implementing contractors to observe program delivery. This research was concluded in June 2011.

KEY FINDINGS AND RECOMMENDATIONS

This section presents the key conclusions and recommendations from the findings and analyses presented throughout the report. These conclusions and recommendations are organized around the key areas of research. Some of these recommendations require additional on-going program expenditures. Con Edison and O&R must identify which of these costs are possible while maintaining a cost effective program.

The recommendations are applicable to both Con Edison and O&R, except where specified. Since the process evaluation was designed to provide early feedback, many of these recommendations have been implemented as of January 2012.

1.1 PROGRAM PLANNING AND DESIGN

Free measures are not effective in selling the program to eligible businesses. Offering the free measures right away to eligible businesses can make them skeptical of the program. To meet program goals and be cost effective, a substantial number of participants must install reduced cost measures.

Program non-participants were not satisfied with the recommended program measures. Both SBDI participants and non-participants expressed interest in air-conditioning measures. The DPS approved additional refrigeration measures proposed by the Companies. Furthermore, Con Edison is developing a list of proposed measures for the SBDI program, including two heating, ventilation and cooling (HVAC) measures. O&R offers HVAC measures as part of its Commercial and Industrial Existing Buildings Program that was launched in April 2010.

Recommendations for Program Planning and Design

- Consider offering free CFLs and other free measures contingent upon the installation of reduced cost measures. This approach will eliminate second visits that result in only free measure installations.

- Evaluate whether additional HVAC measures may be cost-effective for inclusion in the SBDI program.

1.2 INFRASTRUCTURE DEVELOPMENT

Sales auditors and subcontractors described the SMART system as relatively easy-to-use. Willdan staff and their many subcontractors use the SMART system to upload completed energy survey results and track approved work orders.

The evaluation team was able to match database kWh acquired to the monthly Willdan report. The data extract that included acquired savings matched the reports sent to Con Edison and O&R, which were used for DPS reporting.

Improvements to the contacts table of the SMART system would improve follow up with interested customers. The contacts table is an essential component of the SMART database. It is designed to track contacts with interested and participating customers. Incomplete and inconsistently filled out fields hamper the ability to follow up with customers throughout the participation process. In August 2010, some key variables were missing from the contacts table that would facilitate follow-up. Furthermore, there are multiple spellings of the same company's name and "none" is listed as the contractor for several pending measures.

Many quality control issues in the tracking database are easily fixed by restricting what can be entered in key fields. In the customer contacts table, the nature of the interaction with the customer is not well populated in the program tracking database. The field is often blank. The sales auditors use a marketing spreadsheet to track the results of their street sweep activities. These results are not well-recorded in the SMART system. Without this information it is difficult to know what follow-up action is needed.

It is difficult to determine a customer's program status in the SMART system. Additional fields in the SMART system would improve the tracking of program participant and non-participant progress. Follow-up responsibilities need to be clearly assigned to specific staff (sales auditors or installer), with their company affiliation clearly recorded.[3]

[3] As of January 2012, Con Edison staff indicates that follow-up responsibilities are more clearly assigned.

Recommendations for Infrastructure and Development

SMART database

- Contacts: Include separate fields to track the SBDI staff person's name and company.
- Contacts: Include a status field that identifies, for each interaction, whether the customers requires follow-up, has completed a step or is final (completed a project or has refused to participate.)
- Contacts: Include contact name, direct telephone number and email (if available) for contact at the customer business.
- Contacts: Link contacts table to eligible customer table. Provide functionality to look up customer in eligibility list.
- Contacts: Type of Contact (limit to six to eight types e.g. incoming call, outgoing call, email),
- Add a look-up table for each subcontractor company to restrict the values entered for contractor company.
- More clearly record the result of the interaction: Limit the reasons that an energy survey was not completed or scheduled (e.g., decision-maker not present, decision-maker refused, gatekeeper refused, business closed).
- Require key date fields in database be completed. These include survey completion, work order completion, work order signed, and installation complete.
- [Con Edison] Require Willdan monthly reports to include aging statistics on all pending energy surveys, customer agreement/refusals (work orders) and installations.[4]

1.3 MARKETING APPROACHES

Con Edison and O&R substantially increased the quantity of SBDI marketing by early 2011. Slow development of marketing materials by Willdan hampered outreach efforts in the first year of the Con Edison and O&R programs. Con Edison has developed additional SBDI marketing materials after a slow start. Con Edison has focused significant efforts on the overarching Green Team campaign, designed to raise general awareness of the EEPS programs, and ramped up targeted zip-code or region -specific outreach and marketing. O&R has substantially increased its marketing efforts and adopted "Lighten Up" as the program name. O&R has aggressively marketed the program with many materials, including a new website, sales kit folder, business cards for field staff, radio ads, newspaper/magazine ads, case studies and customer testimonials, to name a few.

[4] As of January 2012, Con Edison staff indicate that Willdan provides aging statistics, on a requested basis.

Marketing materials must demonstrate the program's legitimacy by strongly branding the program as Con Edison and O&R programs. The marketing collateral is an important vehicle for providing customers necessary program information to reference and share with decision-makers. The program has encountered resistance from some customers, who suspect that implementation staff might be energy service companies (ESCOs). Many customer testimonials and videos have been created that foster goodwill and reinforce legitimacy.

Many small businesses are suspicious of door-to-door solicitations. Sales auditors have experienced difficulty getting entre into businesses, and initially had little identification associating them with Con Edison or O&R. In early 2011 Con Edison approved specifications for Green Team T-shirts and jackets for implementation contractors and subcontractors. Using the Con Edison Green Team brand may make sales auditors and subcontractors more recognizable as legitimate representatives of a Con Edison program. Based on interviews with implementation contractors in March 2011, SBDI field staff had not yet received these materials.[5] O&R subsequently provided businesses cards to SBDI staff that included the O&R logo in addition to Willdan's logo.

Most subcontractors provide turn-key service, providing all program functions, from sales auditor to installer. This provides continuity for the customer and assures the installer that the project specifications are correct and consistent with their approaches. In these various roles the subcontractor may be the only program contact a customer has. The Con Edison SBDI marketing materials, however, include only Willdan and Free Lighting logos (in addition to the utility logos), which has caused some confusion for eligible businesses when these subcontractors contact them.[6]

Recommendations for Marketing Approaches

- [Con Edison] Require Willdan and Free Lighting sales-auditor and subcontractors to wear the Con Edison Green Team clothing.[7]
- [Con Edison] Develop hardcopy marketing materials that include case studies and testimonials that can be used by sales auditors.[8]
- Develop hardcopy marketing brochures that include the logos of authorized subcontractors to establish their legitimacy.[9]

[5] As of July 2011, Con Edison staff indicates that auditors and subcontractors wear Green Team clothing.
[6] As of January 2012, Con Edison staff indicates that Willdan's subcontractors mostly do installations only, and take leads from the Willdan sales auditor staff, who conduct the energy surveys. Con Edison staff indicates that this approach has helped to increase savings.
[7] As of July 2011, Con Edison staff indicate that sales auditors and subcontractors wear Green Team clothing.
[8] As of July 2011, Con Edison staff indicates these marketing material are in place.
[9] O&R staff indicates that installation subcontractors have Lighten Up business cards with both Willdan and O&R logos.

- [Con Edison] Include on the website more detailed case study information, including the business name, specific location, information about the specific equipment, photos of the business (and new equipment), and quotes from the business about the benefits they have seen.[10]
- [Con Edison] Add links to the SBDI website to the previously developed video case studies for the Manhattan Natural Foods Store and Queens Small Business.

1.4 CUSTOMER ACQUISITION

The Con Edison and O&R SBDI programs have relied on the street sweep approach to complete energy surveys with eligible businesses. The evaluation staff observed that the door-to-door method appeared difficult and labor intensive.

Chain accounts have many eligible business locations, which could substantially increase the number of projects completed by the SBDI program. Chain accounts are likely to have easier access to capital than independently owned businesses, making upfront cost barriers less of an issue. Contact with an individual at the corporate level, though more difficult to achieve, may result in installations at multiple sites. Outreach to the individual stores level has not proven successful for capturing the attention of the decision-makers. Chain account respondents confirmed that decision-makers are at the corporate level and it is difficult to reach them through the individual stores. Some chain accounts have contracts with vendors who replace lighting and have a set schedule for upgrading facilities.

Reaching the decision-maker can be a significant challenge to engaging small business facilities. Managers and decision-makers often are not present when sales auditors visit or call a business. A gate keeper may conclude that the program is not of interest because they assume it is another sales attempt. As a result, the information never reaches the decision-maker.

Customers require multiple outreach attempts to identify and engage the decision-maker with the authority to install the efficiency measures. A large portion of businesses in the SMART database contact table do not indicate follow up when the manager or decision-maker was not present**.** The program should include guidelines for follow-up with contacted customers when the decision-maker is unavailable or there is a pending decision. There should also be follow-up protocols for businesses that completed an energy survey.

Phone survey results showed that when customers had questions following an energy survey it was difficult to get answers. After customers obtained their energy survey, the sales auditors did not consistently return in person to present the results. Both Con Edison and O&R customers mentioned they had unresolved questions. The energy survey report includes the 1-888 WILLDAN number for Con Edison and the 1-877-786-0555 number for O&R SBDI. The energy survey results often do not include the full name of the sales auditor. Finally, the energy

[10] As of July 2011, Con Edison staff report that case studies are included in the 2011 EEPS marketing campaign.

survey report does not always include enough detail regarding the recommendations for the customer to make an informed decision. For example, in Con Edison service territory, a work order detailing the product description, model number, recommended quantity of each measure and location is not always provided.

Recommendations for Customer Acquisition

- Target chain accounts at the corporate level as much as possible (e.g., Chief Financial Officer or Chief Operations Officer). This may require Con Edison or O&R utility staff to take the lead in introducing the program.
- Use Con Edison and O&R utility staff to reach out to chain accounts that do not have existing relationships with Willdan or Willdan's subcontractors to leverage the utility brand and relationship with the corporate customers.
- Provide energy survey results to the customer right away. Consider portable tablet computers that can be used for email and to obtain customer signatures.
- Develop protocols for follow-up. Once an account is contacted for the program, the program should contact that customer a predetermined number of times (e.g., once a week) within a limited time frame (e.g., one month to two months) to establish a final decision.[11]
- Use the SMART system to trigger a variety of follow-up activities (e.g., telephone calls, brochure mailings or visits), especially after energy survey results have been provided to the eligible business.
- Require sales auditors to provide a work order as part of the energy survey report, detailing the product description, model number, recommended quantity of each measure and location.
- Modify the energy survey tool to include contact information for the sales auditor on the summary report, such as a cell phone number and email address. This will make it easier for eligible businesses to follow up directly with the sales auditor (someone they now know) who is in the best position to answer questions about their location.
- Include the full name (first and last) of the surveyor is included in the summary report provided to the business.

[11] As of January 2012, Con Edison staff indicates that this is now being done.

1.5 PROGRAM DELIVERY

Customer leads and energy surveys completed have steadily increased at similar rates for both Con Edison and O&R since the SBDI program began. As of June 2011, the rate of completed installations, however, lags behind the rate of increase in energy surveys. The installation of measures with signed work orders has been slow, with more than 50 percent of installations taking more than two weeks to start.

Changes to work orders subsequent to customer agreement causes installation delays and participant dissatisfaction. Willdan completed sales audits (and work orders) in the Con Edison service territory have often required changes prior to installation. Installation contractors expressed some frustration with the quality of the surveys (and subsequent work orders). Willdan is currently inspecting 10 percent of all energy surveys to verify the accuracy of the report and the correct use of the survey tool. This will assist in identifying the items that should be addressed in training.

Installation contractors do not receive penalties (or bonus payments) related to completing projects within a specific timeframe. In both Con Edison and O&R service territories, turnkey contractors and installation contractors are encouraged to complete the installation, as soon as possible. There are no additional financial penalties (or rewards) associated with the timing of the installation.

Willdan sales auditors in the Con Edison service territory receive bonus payments for completing more energy surveys and acquiring energy savings (i.e., signed work orders). There is no bonus payment for ensuring that the measures listed on signed work orders are actually installed. Therefore, the current bonus payment structure only encourages quantity of energy surveys and signed work orders, and does not encourage sales auditors to ensure that the project specifications are adequate for the installation contractor. In contrast Free Lighting sales auditors are only paid when the installation is completed.[12]

Based on customer feedback on program processes and complaints about the quality of contractor work, the 10 percent rate of inspection of program installations currently being undertaken by Willdan is not sufficient. In the early years of a new program, installation contractors are still feeling out program requirements and Willdan has the responsibility to oversee a large number of subcontractors. Quality control is important for ensuring that the information recorded in the program tracking system is correct (e.g., quantity, business type, hours of operation), and for customer satisfaction with the program.

The Willdan inspection procedures in Con Edison's territory provide a clear process for contractors to understand how they are performing compared to program expectations. In O&R territory, Willdan inspects at least 10 percent of completed projects randomly and 100

[12] As of January 2012, Con Edison is paying half the bonus payment at the time the survey is completed, and the other half when the installation is complete.

percent of those that have a complaint. Given the much smaller pool of subcontractors, Willdan has daily contact and more control over contractor activities.[13] O&R has removed subcontractors from the SBDI program due to poor performance.

Recommendations for Program Delivery

- [Con Edison] Pair sales auditors with installation contractors to help streamline the hand-off process and familiarize sales auditor with specific installation contractor capabilities and preferences.
- [Con Edison] Pay half of the sales auditor bonus payment when work order is signed and the remaining half when the project is installed.
- For installation contractors, restructure the reimbursement of the equipment with a 10 percent bonus for installations completed within two weeks. Penalize contractors that have a predetermined number or percentage of installations that are not completed within three weeks.
- Require Willdan and Free Lighting to inspect 10 percent of each subcontractor's completed projects, with increased percentage of inspections for contractors who do not perform well and fewer inspections for those who do well.

1.6 SATISFACTION WITH THE PROGRAM

Approximately 75 percent of both Con Edison and O&R program participants report being satisfied with their overall SBDI program experience. Con Edison participants are most satisfied with the energy survey process. O&R participants are most satisfied with the installation process associated with the SBDI program.

Participant dissatisfaction with both programs was related to CFLs and to the contractors. First, some participants reported that free CFLs burned out quickly or did not produce adequate light. Of all program equipment installed, participants were most likely to remove CFLs. Second, some program participants were dissatisfied with program contractors who left jobs unfinished or did not return with free CFLs that were promised.

Recommendations for Satisfaction with the Program

Many of the recommendations discussed above will lead to increased participant satisfaction. These include:

- Better tracking that leads to consistent follow-up with interested customers,
- Energy surveys with more accurate and complete information,
- Faster program delivery through incentives and monitoring,
- Offering additional measures to appeal to a wider variety of businesses, and

[13] As of May 2012, O&R staff indicates that sites are selected randomly and increased to 20% in November 2011.

- Follow-up with all customers who express an interest in participating.

1.7 INTERACTIONS WITH OTHER PROGRAMS

The small business customers targeted by the SBDI program are unaware of other energy efficiency programs in the region. The majority of the small business customers were unaware of other energy efficiency programs. The great majority had not participated in an energy efficiency program other than the SBDI program.

Most installation contractors interviewed are actively participating in other energy efficiency programs in the New York area. Four of the five contractors interviewed are working with other energy efficiency programs in a similar role as they do with the SBDI program. This creates competition for contractor resources.

There is no evidence of double-counting of program savings. The field observations and interviews with contractors did not provide any evidence of double-counting of savings, where program measures may have been rebated through an alternate program. Con Edison, however found an instance of potential double-counting between SBDI and the Targeted DSM program.

2 INTRODUCTION

This report presents the results of the process evaluation for the Small Business Direct Install programs administered by Con Edison and Orange & Rockland (O&R).

2.1 BACKGROUND

In May 2007 the New York Public Service Commission (DPS) initiated a proceeding to design an electric and natural gas energy efficiency portfolio standard (EEPS). This order was in response to then-Governor Eliot Spitzer's goal of reducing energy usage 15 percent by 2015. The responsibility for administering the new programs was split between the investor-owned utilities and the New York State Energy Research and Development Authority (NYSERDA). On June 23, 2008 the PSC issued an order establishing the EEPS target, which approved the EEPS programs and required utilities to file their program proposals within 90 days. The order required two program proposals, the Small Business Direct Install (SBDI) and the residential Heating Ventilation and Cooling (HVAC) programs, to be expedited and due in 60 days (i.e. Fast Track Programs).

Con Edison and O&R filed their respective program plans for gas and electric residential HVAC and SBDI programs with the DPS on August 21, 2008. After the SBDI program was approved by the DPS on January 16, 2009, Con Edison released a request for proposal for third-party implementation of the SBDI program for launch on June 1, 2009. The program ramp-up included the following steps:

- August 2009: Con Edison approved the purchase orders for Willdan Energy Solutions to serve as the program implementer.
- October 2009: Willdan Energy Solutions officially began implementing the SBDI program for Con Edison.
- July 2010: Con Edison contracted with Free Lighting Corporation to implement the SBDI program in the borough of Staten Island. Free Lighting Corporation began reporting savings in November 2010.

In November 2009, O&R finalized its contract with Willdan. Dedicated Willdan staff for O&R was hired in January 2010 to coordinate SBDI program activities.

2.2 PROGRAM DESCRIPTION

Con Edison and O&R designed the SBDI programs for rapid deployment of energy efficiency measures to existing small commercial and industrial (C&I) customers. Both companies defined small C&I customers as those with facilities that have an average monthly peak demand of less than 100 kilowatts (kW). The SBDI program provides free on-site energy surveys, direct

installation of free low-cost efficiency measures, and paid measures at customer cost of 30 percent of installed measure cost.

The program provides free energy surveys as a service to small business customers, as well as to encourage the adoption of free and reduced-cost energy efficiency measures. The energy surveys were designed for the SBDI program to engage customers, to provide customized recommendations for energy efficiency upgrades, and to document existing equipment. The contractors who conduct the surveys discuss appropriate behavioral and operational energy efficiency actions, inspect the customer's equipment and building envelope, and provide recommendations on cost-effective energy efficiency upgrades.

Following the energy survey, the contractor provides a summary of recommended energy efficiency measures and schedules a time to install the measures. The SBDI program offers some energy efficiency measures at no cost to participants. However, participants who choose to install more extensive recommended measures receive a 70 percent discount and, therefore, pay only 30 percent of the installed cost for most measures. Figure 1 summarizes the incentives for the program energy efficiency measures (free versus reduced cost).

Figure 1: Summary of SBDI Program Incentives

Measure	Eligibility	Incentives
Compact Fluorescent Lamps	ENERGY STAR®	Free
Low-flow Aerators	1.5 Gallons Per Minute (GPM)	Free
High-pressure Rinse Sprayers	1.6 GPM	Free
Water Heater Thermostat Setback	Thermostat setback and replacement (115 degrees F)	Free
LED Exit Signs	5 Watts	70% of installed cost
Water Pipe Insulation	R-4 Insulation	70% of installed cost
Occupancy Sensors	Fluorescent	70% of installed cost
Vending Machine Controls	Passive Infrared Sensor Monitoring Vacancy of Area and Cycling Cooling Controls	70% of installed cost
HVAC Retro-Commissioning		70% of cost
Programmable Thermostat	ENERGY STAR®	70% of installed cost
Evaporator Fan Controls		70% of installed cost
Anti-condensation Door Heater Controls	Variable temperature controls	70% of installed cost
Efficient Lighting Package	Meets federal code	70% of installed cost
High-efficiency Lighting Package	Above federal code by 15%	70% of incremental installed cost
Bi-level Control for Stairwell Lighting	50% Lighting power during unoccupied time	70% of installed cost
LED Refrigeration Case Lights	28 Watts	70% of incremental installed cost

2.2.1 Program Goals and Objectives

The SBDI program is designed to cost-effectively contribute to New York State's and New York City's energy efficiency goals.

Per the SBDI program filing (submitted August 21, 2008 to the Public Service Commission), specific objectives associated with this program include:

- Reducing energy use, peak demand, local air pollution impacts, and carbon dioxide emissions in Con Edison and O&R service territories.
- Maximizing available cost-effective energy savings for every small business participant in the program.
- Effectively driving the adoption of low-cost but high-value energy efficiency measures in customer facilities.
- Increasing small business customer awareness of energy efficiency opportunities available in its facility, from both equipment upgrades and behavioral changes.
- Generating customer awareness of energy efficiency programs available through Con Edison, NYSERDA, and other entities to support their energy efficiency objectives.
- Building higher-level customer, trade ally, and stakeholder relationships by providing value-added energy efficiency services, training, education, hardware, verification, and customer support.
- Supporting the local economy by helping to reduce small-businesses' operational costs, utilizing local labor, and promoting the adoption of high-quality equipment.

2.3 Evaluation Objectives

The overall objective of the SBDI process evaluation is to assess the effectiveness and efficiency of program design, delivery and implementation processes to achieve the program's outcomes. The evaluation seeks to provide clear and actionable recommendations to support the program in improving operations and meeting its savings goals.

The process evaluation addressed the following program areas:

- Program planning and design,
- Infrastructure development,
- Marketing and customer acquisition,
- Program delivery through partnering with trade allies,
- Satisfaction with the program, and
- Interactions with all other available programs.

Goals for the SBDI program are aggressive, especially given the delayed start-up for program implementation. Con Edison and O&R are committed to meeting these goals and are most interested in process evaluation findings that will assist them in accelerating program activity.

With this in mind KEMA has prioritized process evaluation activities that are likely to result in program recommendations that meet that objective.

Within each of these categories, research questions specific to the SBDI program were identified. Appendix A presents the research area, specific research questions within each area and the section of the report that addresses each question.

2.4 OVERVIEW OF METHODOLOGY

The research and the findings expressed in this report are based upon the following evaluation activities:

- Review of program planning and marketing materials,
- Review of program tracking system, data, and other program delivery documents,
- Review of results of third-party verification activities,
- In-depth interviews with:
    - Con Edison staff (nine completed)
    - O&R staff (two completed)
    - Willdan staff (10 completed) – 6 for Con Edison, 2 for O&R and 2 with overall responsibility.
    - Willdan subcontractors (five completed)
    - Free Lighting Corporation staff (one completed)
    - Program participants (five completed)—Businesses that installed free or non-free measures through the program,
    - Program non-participants (five completed)—Eligible businesses offered the program that did not receive an energy survey or who received a survey but did not install any measures. These customers were likely to be aware of the program.
    - Con Edison chain account customers (10 completed) – Both participating and non-participating chain accounts.
- Customer telephone surveys with:
    - Program participants (300 Con Edison, 94 O&R)
    - Program non-participants (300 Con Edison, 300 O&R), and
- Ride-alongs with sales auditors and installation contractors (four days total).
    - Three days in Con Edison
    - One day in O&R

A full description of the evaluation methodology is provided in Appendix B.

2.5 ORGANIZATION OF REPORT

This report is organized around the six broad research areas. Two sections follow this introduction:

- Chapter 3. Analysis and Findings, discusses the key findings of the research conducted; and
- Chapter 4. Conclusions and Recommendations, provides the recommendations for modifications to the program.

3 Analysis and Findings

This chapter discusses the analysis and process evaluation findings, beginning with an examination of program participation and achievements to date. We then assess program processes according to the program areas identified in the evaluation objectives:

- Program planning and design,
- Infrastructure development,
- Marketing and customer acquisition,
- Program delivery through partnering with trade allies,
- Satisfaction with the program, and
- Interactions with all other available programs.

3.1 Summary of Participation and Program Achievements to Date

Both programs are significantly behind target for meeting the 2009-2011 goals, having only achieved approximately 50 percent of kWh and over 30 percent of kW savings goals in both utility territories. Table 1 and Table 2 summarize the SBDI program goals and achievements for Con Edison and O&R, respectively. (All energy savings achievements in this report are ex ante, and have not been confirmed by an independent impact evaluator.) Due to delays in program start-up the program implementation plan annual goals for 2009 through 2011 were combined into a single goal to be achieved by December 31, 2011.

Table 1. Con Edison–SBDI Goals and Reported Achievements[14]

	Program Goal 2009 – 2011	Progress through June 2011	Percent of Goal Achieved
Number of Surveys	16,922	22,185	131%
Savings (MWh)	289,875	99,359	34%
Coincident Peak Savings (MW)	51	25	49%

Source: Con Edison Monthly Scorecard (June 2011)

Table 2. O&R–SBDI Goals and Reported Achievements[15]

	Program Goal 2009 – 2011	Progress through June 2011	Percent of Goal Achieved
Number of Surveys	2,005	1,879	94%
Savings (MWh)	34,345	10,878	32%
Coincident Peak Savings (MW)	6	3	50%

Source: O&R Monthly Scorecards through June 2011

[14] The Con Edison SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 221,225 MWh.

[15] The O&R SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 23,454 MWh.

In Con Edison territory, Willdan acquired 99 percent of the total savings reported through June 2011. Free Lighting Corporation was responsible for the remaining one percent. In O&R territory, all savings were acquired by Willdan serving as the implementation contractor.

3.1.1 Program Spending Levels

While both utilities have achieved approximately 50 percent of their SBDI program kWh goals through June 2011, there are differences in the amount of budget spent. Con Edison expenditures on incentives are in line with the program savings achieved. Program administration, planning and implementation include the costs of developing Con Edison's SBDI program procedures, manuals and overseeing contractor work. These activities occurred during the beginning of the program funding cycle. Similarly, the marketing budget was spent early in the program to create awareness and develop the necessary marketing materials.

Table 3. Con Edison – SBDI Program Spending (through June 2011)

Budget Category	Con Edison Program Budget	Con Edison Program Expenditures	Percent of Budget
Incentives	$52,922,948	$21,711,959	41%
Administration & Planning	$1,348,253	$1,837,471	136%
Implementation	$14,799,178	$9,193,171	62%
Marketing & Training	$3,825,058	$2,971,981	78%
Evaluation	$3,835,252	$466,266	12%
Total Program Budget	**$76,702,688**	**$36,180,849**	**47%**

Source: EEPS Budget vs. Actual Program Cost Comparison by Cost Component, June 2011

Although O&R overall program expenditures are in line with the savings achieved, the amount spent on incentives is much lower. This may be a result of delayed billing for installations that have been completed but not yet billed to O&R. Additionally, O&R has spent a significant amount of its administration & planning and implementation budgets to administer initial program activities and coordinate Willdan program procedures. O&R has also overseen the development of a program outreach campaign related to rebranding the program as "Lighten Up" and creating substantial marketing materials.

Table 4. O&R – SBDI Program Spending (through June 2011)

Budget Category	O&R Program Budget	O&R Program Expenditures	Percent of Budget
Incentives	$6,270,370	$1,293,874	21%
Administration & Planning	$159,743	$93,607	59%
Implementation	$1,750,935	$1,236,538	71%
Marketing & Training	$453,197	$224,392	50%
Evaluation	$453,976	$105,539	23%
Total Program Budget	**$9,087,821**	**$3,384,831**	**37%**

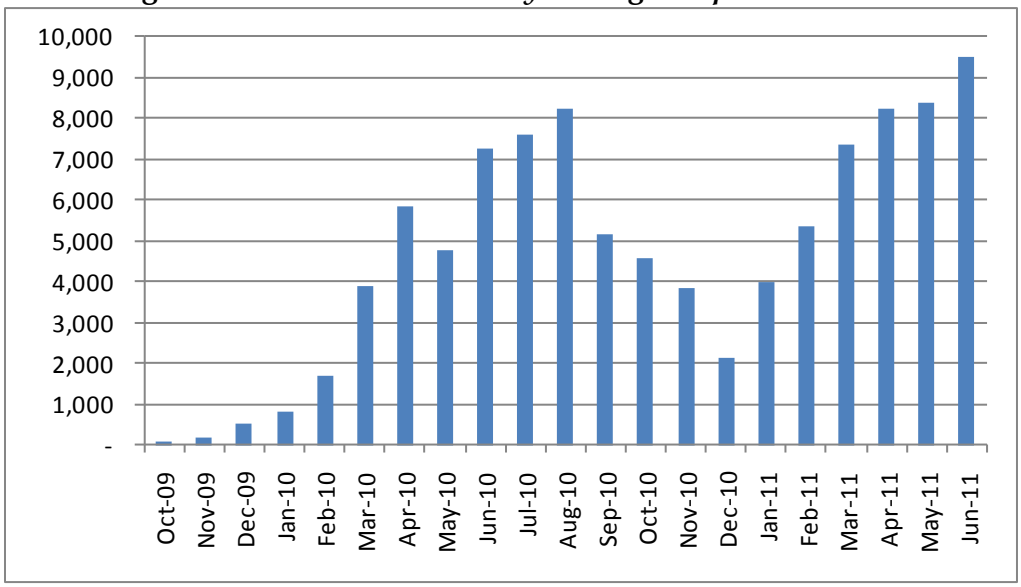
Source: EEPS 60-day filing (August 2008), and O&R monthly scorecards through June 2011

3.1.2 Program Activity Levels

The SBDI programs in Con Edison and O&R territories experienced implementation delays, with the Willdan contract being awarded in August 2009. Since then, the program ramp-up has not steadily increased as needed to meet program savings goals.

Figure 2 shows that program activity in Con Edison territory peaked in August 2010 and steadily decreased through November and December 2010. While the holiday season in November and December is a difficult time to engage small businesses, the program savings drop-off occurred partly because of invoicing issues and procedures. . Once the invoicing requirements were clear and mutually agreed upon, program activity began to increase once again in the early part of 2011.

Figure 2: Con Edison Monthly Savings Acquired (MWh)



Source: Con Edison Monthly Scorecard (June 2011)

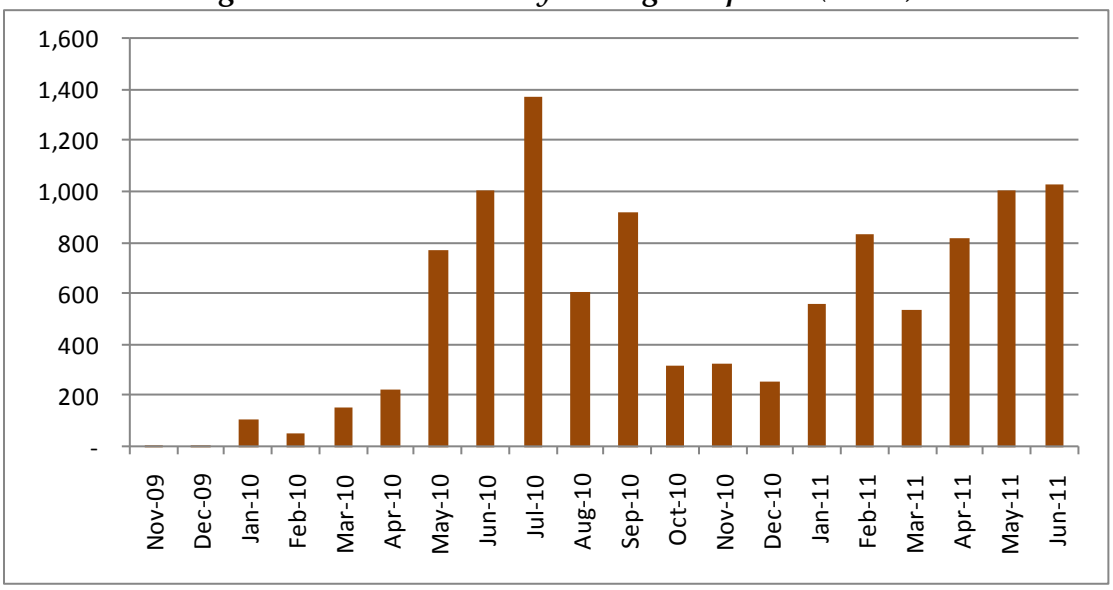
To achieve the overall energy savings goal for 2009 through 2011, the Con Edison SBDI program needed to achieve an average of more than 9,000 MWh savings each month starting in June 2009. June 2011 was the first month that Con Edison achieved this savings. Table 5 below provides an analysis of the level of monthly savings now needed to achieve the overall program savings goal. To achieve goals the program must achieve almost 32,000 MWh in savings for each of the remaining six months of 2011.

Table 5. Con Edison – Analysis of Monthly Savings Needed

	Cumulative Savings (MWh)	Monthly Savings in June 2011 (MWh)
Achieved through June 2011	99,359	9,479
Remaining needed	190,516	31,752
Target[16]	**289,875**	

Figure 3 shows that O&R suffered similar fate at the end of 2010 as Con Edison. The SBDI program must now quickly ramp back up to regain lost ground.

Figure 3: O&R – Monthly Savings Acquired (MWh)



Source: O&R monthly scorecards through June 2011

To achieve the overall energy savings goal for 2009 through 2011 the O&R SBDI program needed to acquire an average of more than 1,100 MWh savings each month starting in June 2009. Table 6 below provides an analysis of the level of monthly savings needed to achieve the overall program savings goal for 2009 through 2011. To achieve the goals, the program must achieve almost 4,000 MWh in savings for each of the remaining six months of 2011.

Table 6. O&R – Analysis of Monthly Savings Needed

	Cumulative Savings (MWh)	Monthly Savings in June 2011 (MWh)
Achieved through June 2011	10,878	1,031
Remaining needed	23,467	3,911
Target[17]	**34,345**	

[16] The Con Edison SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 221,225 MWh.

3.1.3 Characterization of Program Measures Installed

As of August 10, 2010, the vast majority of both Con Edison and O&R program savings were related to reduced cost (i.e., non-free) measures, where the programs pay a 70 percent incentive on eligible measures. Table 7 shows the relative portion of program savings from reduced-cost measures and free measures. The lighting measures altogether comprise more than 99 percent of program savings.

Table 7. SBDI Installed Measures, through August 10, 2010

Measure Type	Con Edison Program		O&R Program	
	kWh	% kWh	kWh	% kWh
Customer Cost Measures				
Linear Fluorescent Lighting	27,922,400	76%	3,189,247	77%
CFL	2,055,462	6%	277,953	7%
Other lighting (e.g., LED, sensors)	967,993	3%	113,257	3%
All other measures	55,832	0%	35,667	1%
Customer Cost Measures Total	**31,001,687**	**84%**	**3,616,124**	**88%**
Free Measures				
CFL	5,717,236	16%	497,510	12%
Faucet Aerators	11,357	0%	1,662	0%
High-pressure Rinse Valve	73,860	0%	0	0%
Free Measures Total	**5,802,453**	**16%**	**499,172**	**12%**
Total	**36,804,140**	**100%**	**4,115,296**	**100%**

Source: Willdan SMART system program database

Both Con Edison and O&R have primarily focused on selling linear fluorescent lighting fixtures through the SBDI program as the greatest source of program savings. Recent federal legislation will increase the minimum ballast and lamp efficacy requirements that affect T12 light fixtures. KEMA estimates that the T12 change-out to a T8 system will remain a viable energy efficiency program measure for at least the next three to five years, especially in the small commercial sector.

3.1.4 Implementation Staff

Due to the size of the program participation and savings goal, a large number of people are involved with delivering the SBDI program in Con Edison and O&R service territories. Both utilities have contracted with Willdan Energy Services to deliver the SBDI program on their behalf. Con Edison has also contracted separately with Free Lighting Corporation to deliver the program on Staten Island.

[17] The O&R SBDI program energy savings goals for 2009-2011 were subsequently revised downward to 23,454 MWh.

Willdan and Free Lighting Corporation have different staffing approaches to deliver the programs in their areas. Free Lighting was using mostly its own employees to deliver the program. Willdan has a number of subcontractors assisting with key program components.

Table 8 provides a description of the key roles, and the staff responsible (Willdan staff, Free Lighting staff or Willdan subcontractor). In this report we use the term implementation contractor to refer to both Willdan and Free Lighting and their roles as directly contracted by Con Edison.

Table 8. Description of Program Staffing and Roles

Role	Responsible Party
Implementation contractor	Willdan Energy Services (Con Edison and O&R) Free Lighting Corporation (Con Edison)
Sales auditor	Willdan or Free Lighting staff conducting door-to-door sales
Subcontractor	Contractors hired directly by Willdan, including: • Turnkey contractor (Sales, energy surveys, and installs) • Installation contractor (Install only)

3.2 PROGRAM PLANNING AND DESIGN

The SBDI program is designed to address several market barriers to energy efficiency in the small business market segment, including:

- Thin profit margins and lack of access to capital (as a result of their economic status or credit-worthiness) making investments in energy efficiency challenging, and
- Lack of information, time, and resources to understand energy efficiency opportunities and solutions.

Therefore, direct installation programs are designed to facilitate energy efficiency retrofits by providing significant financial incentives, pre-approved qualified contractors and quality, energy-efficient equipment. Table 4 summarizes the market barriers and program design approaches (including marketing and outreach) to overcome those barriers.

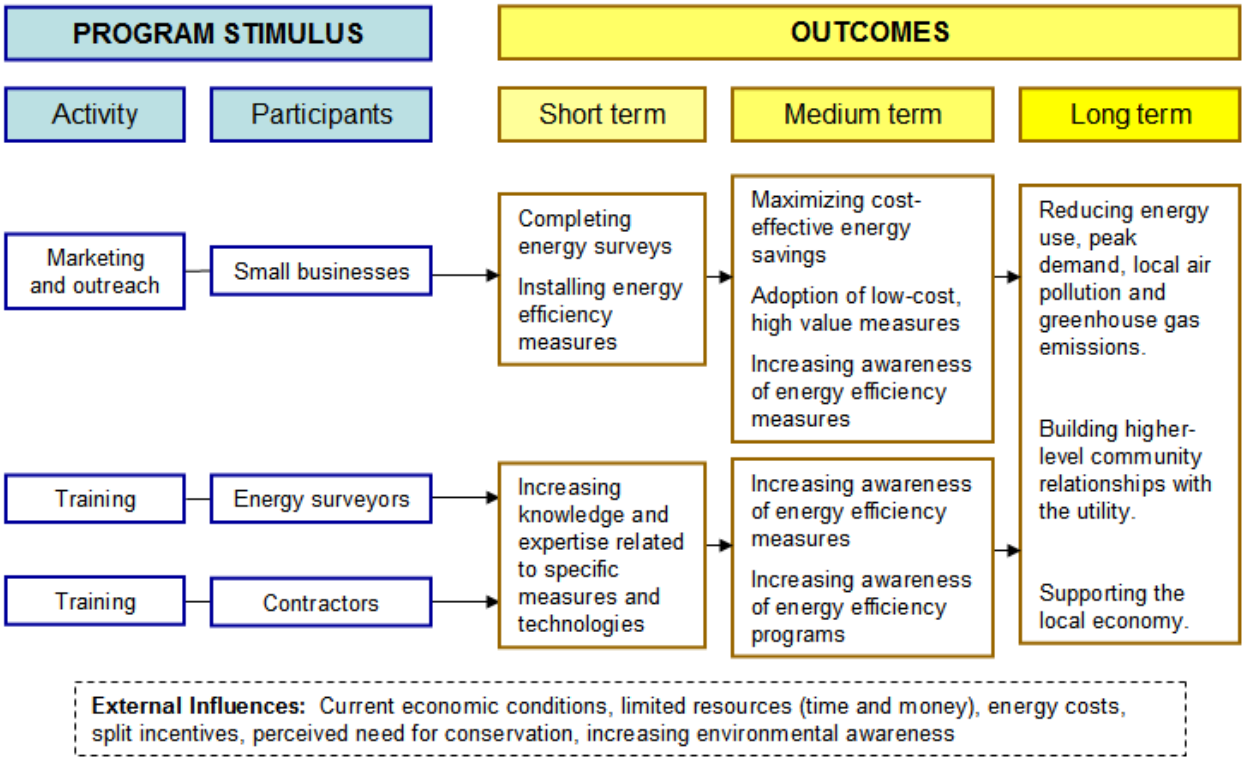
Figure 4: Market Barriers and Program Strategies to Overcome[18]

Market Barriers	Mitigation Strategies
High cost of efficient equipment and declining economic conditions	• Free on-site energy surveys and direct installation measures for immediate savings, • Provide information on additional rebates to help offset the cost of efficient equipment, • Help customers implement a phased approach to installing larger upgrades
Lack of customer awareness of programs and energy efficiency actions	• Free, third-party analysis and recommendations, • General education and information about simple operational changes and initiatives that provide on-going savings, and • Grassroots, social marketing to hard-to-reach business sectors and sub-sectors.
Limited time, resources, and awareness on how to act on recommendations	• Immediate direct installation of certain measures, • Trade ally network and referral program to help identify appropriate contractors, • Follow-up calls and letters to help customers move through installation steps, • Provide simple maintenance tips for ongoing savings, and • Communicate with customer management or decision-makers.
Trade ally awareness	• Ongoing trade ally communications, outreach, education and training.
Customers wary of biased advice	• Grassroots, social-based marketing, and outreach through local community groups, and • Develop informational materials in languages common to specific business sectors.
Customers skeptical of energy-savings calculations	• Free independent assessment and recommendations, and • Develop case studies of actual projects with energy savings where appropriate.
Bifurcated market – lack of incentive for building owners and tenants to invest in improvements	• Work with property managers, owners and tenants to communicate larger value of efficiency (beyond utility bill savings).

An SBDI program logic model is presented below in Figure 5. The program logic model presents the goals of the program, the activities that are necessary to accomplish those goals, and causal relationships between the program activities and its effects.

[18] Con Edison SBDI 60-day EEPS filing. August 21, 2008. Page 21.

Figure 5: Small Business Direct Install Logic Model



In January 2009 the New York State Department of Public Service (DPS) issued an order requiring Con Edison and O&R to launch direct install programs for small businesses (using less than 100 kW average demand) by June 1, 2009. This timeline allowed less than six months for the utilities to plan, build infrastructure, hire implementation contractors, launch and begin marketing the programs.

Con Edison and O&R secured implementation contracts for program delivery within nine months of the DPS order. The development of a program plan and contractor solicitation for a program of this magnitude requires significant time and staff resources, involving multiple entities within Con Edison and O&R. Key milestones in the process occurred:

- **January 2009** – DPS order to launch program
- **March 2009 –** Joint request for proposals with proposals due back in one month
- **April 2009 –** One contractor proposal received for Con Edison and none for O&R
- **June 2009 –** Utilities' websites post information about SBDI program
- **August 2009 –**Willdan officially awarded implementation contract for Con Edison
- **October 2009 –** Willdan begins reporting savings in Con Edison territory
- **November 2009 –** Willdan officially awarded implementation contract for O&R and begins reporting savings in O&R territory

Con Edison corporate procedures require that contracts more than $20 million be approved by the Board of Directors, which delayed contract execution. O&R shares procurement services with Con Edison and did not complete the work authorization for Willdan until November 2009. Con Edison and O&R launched their programs on June 1, 2009 by posting information about the program on their websites.

3.2.1 Program Design Challenges and Opportunities

The Con Edison and O&R SBDI programs provide free energy surveys to small businesses to encourage their participation and the installation of energy efficiency measures. Free measures are offered to the customer to acquire immediate energy savings. The programs limit free measures to a total of $100 of CFLs, faucet aerators and high-pressure rinse valves. The energy savings resulting from these measures is small relative to the program costs for delivery. To meet program goals and to be cost effective, a substantial number of participants must install reduced-cost measures.

The reduced-cost measures require program participants to pay a fraction of project costs. At the conclusion of the free energy survey, program sales auditors provide a summary of recommended measures for installation. The programs offer a 70 percent up-front incentive on program measures. Project costs presented to the eligible business reflect only the remaining 30 percent of installed costs. Program participants are defined as businesses that agreed to have SBDI measures installed.

Table 9 and Table 10 provide an analysis of project costs presented to eligible businesses for the reduced-cost measures. More than half of the projects presented to Con Edison and O&R non-participants and participants had total costs less than $1,000. The tables include data on recommended projects for non-participating businesses that completed energy surveys but did not agree to install any measures.

Table 9. Con Edison – Project Costs Presented to Small Businesses

Type of Project	Participant	n	Average	Median	Min.	Max.
Recommended	Non-participant	1,575	$1,018	$467	$5	$25,311
	Participant	878	$1,539	$687	$13	$23,667
Installed	Participant	972	$1,626	$653	$2	$25,863

Source: Willdan SMART system through August 10, 2010. Not all participants in the tracking database had records of completed energy surveys.

Table 10. O&R – Project Costs Presented to Small Businesses

Type of Project	Type of Program Participant	n	Average	Median	Min.	Max.
Recommended	Non-participant	222	$952	$531	$15	$12,037
	Participant	200	$1,076	$402	$12	$11,831
Installed	Participant	200	$1,156	$360	$12	$15,872

Source: Willdan SMART system through August 10, 2010

For both Con Edison and O&R the maximum installed project cost exceeded the maximum recommended project cost for participants. This result implies that sales auditors did not identify and recommend all the potential savings opportunities during the initial energy survey or that customers requested additional measures from the installer beyond those identified in the initial energy survey.

Participation in the SBDI program requires financial investment for small businesses. As with any investment, small businesses must carefully weigh the relative benefits relative to the costs. In addition to the financial consideration, other important factors mentioned by phone survey respondents included assessing the legitimacy of the program and the quality of the new equipment. There is a large sales component to the program, which requires sales auditors to pitch the benefits of the project and ensure that the new equipment meets the needs of the business.

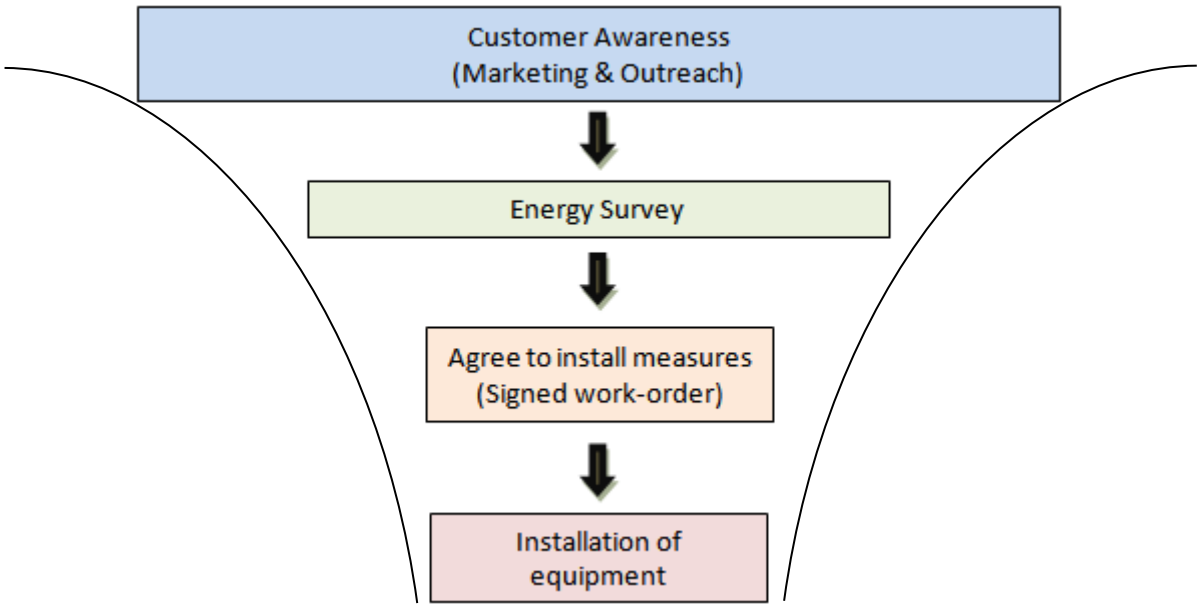
The program primarily promotes energy efficient lighting measures. In the phone surveys of program participants and non-participants, many businesses expressed interest in opportunities to reduce energy use and costs associated with air-conditioning. The SBDI program offers only an air-conditioning tune-up and programmable thermostats. The evaluation found that the program mostly ignores air-conditioning energy-use characteristics when assessing opportunities for reducing energy use. While the SBDI program is limited in its funds to perform a more comprehensive energy audit, there are opportunities to add air-conditioning measures and to cross-promote Con Edison rebate programs for new efficient air-conditioners.

Con Edison has developed a list of potential new measures for SBDI, which have been added for program eligibility in both utility programs. The following three measures were approved by March 2011: refrigeration walk-in door gasket, refrigeration auto walk-in strip curtains and night case covers. Four more measures are pending approval, including two heating ventilation and cooling (HVAC) measures associated with air barriers and refrigeration tune ups.[19]

Figure 6 shows how the program is structured to use the energy survey as the entry point to provide small businesses with customized recommendations and cost estimates for program measures. Once eligible businesses agree to install the measures, the program then completes the project.

[19] O&R staff indicates that HVAC measures could be rebated under its Commercial and Industrial Existing Buildings Program.

Figure 6. SBDI Program Process Flow – The Funnel



Given that both the Con Edison and O&R SBDI programs are well behind their program savings goals for 2009–2011, there are two main ways for the program to catch up:

1. Increase participation (e.g., the number of participants and projects)
2. Increase the potential savings acquired per project by offering additional viable measures through the program, and by ensuring that all feasible measures are identified and promoted.

In the remainder of this chapter, we examine opportunities to increase SBDI program activity in these two areas. We first assess the infrastructure and tracking database, used as the foundation for managing program activity, and the many implementation and subcontractor staff.

To evaluate opportunities to increase participation we examined the marketing and customer acquisition processes that bring eligible businesses into the pipeline, as well as the program delivery processes that move participants through to installed project completion. We assessed satisfaction with program and opportunities to increase the amount of savings per project. Finally, we examined interactions with other program to identify their impact on SBDI participation by eligible small businesses and participating subcontractors.

3.3 INFRASTRUCTURE DEVELOPMENT

In this section, we examine program management and reporting processes associated with the tracking system for the Con Edison and O&R SBDI programs. The program tracking database stores and provides information necessary for the management of the program. It allows implementation staff to identify leads and track participation and progress toward goals. The purpose of the database review is to summarize functioning of the SBDI program tracking database and to provide recommendations for improvement. The database review is based on extracts from the Willdan database, field observations of sales auditors and subcontractors, and the results of in-depth interviews and phone surveys, not on the database itself. The evaluation team also provides an assessment of the accuracy of the information housed in the tracking system.

Willdan Energy Solutions utilizes a proprietary software application called the Subcontractor Management and Reporting Tool (SMART). Free Lighting uses an online application called Green Solutions. KEMA focused its database review on extracts from Willdan's SMART system, which was due to the timing of the process evaluation. At the time of the database review, Free Lighting had not yet started delivering the program. Furthermore, Willdan delivers the majority of program savings.

The evaluation team assessed the database using a variety of information sources. Willdan provided KEMA separate Con Edison and O&R extracts from the SMART database on June 29, 2010 and August 13, 2010. The extracts from Willdan's SMART system included all projects recorded up to those dates but did not include all variables and fields used in the database. Willdan also provided a data dictionary with the first extracts that described each field provided.

The extracts from the SMART system database included tables organized around the following SBDI program components:

- Utility customers eligible for the program,
- Interactions between the program and eligible businesses,
- Energy surveys conducted by the program,
- Recommended measures resulting from the surveys, and
- Scheduled and installed measures.

Overall, sales auditors and subcontractors described the SMART system as a relatively easy-to-use application to upload completed energy survey results and track approved work orders. At the same time, many key fields were not completed for each record, and the data in many fields was entered inconsistently. The evaluation team identified opportunities for improved data quality by adding fields, limiting the type and values of data, and instituting quality control checks when Willdan staff and subcontractors are entering data.

Below, we provide a more detailed assessment of the key program components being tracked by the SMART database system.

3.3.1 Utility Customers Eligible for the Program

To facilitate program marketing and outreach efforts, Con Edison and O&R provided Willdan a list of eligible customers that included basic information about the businesses. Incomplete contact information was provided, however, because both utilities' customer information systems (i.e., billing systems) lacked complete customer contact information. Providing a list of eligible customers to Willdan (and Free Lighting) is extremely beneficial to program delivery, even if it is only the business name, account number, and service address. The list minimized confusion and contractor time spent verifying eligibility. Furthermore, implementation staff did not have to interpret eligibility requirements.

Figure 7 compares the customer contact information that Con Edison and O&R would ideally provide to Willdan and a summary of what Willdan received. While Con Edison and O&R customer databases do not include customer contact names, Willdan received adequate information to undertake targeted street-sweep efforts.

Figure 7: Information provided by Con Edison and O&R to Willdan from August 10, 2010 Extract

Information	Con Edison (309,754 records)	O&R (27,131 records)
Account Number	100% filled and accurate	100% filled 2 duplicates
Business Name	100% filled	100% filled
Service Address	100% filled	>99% filled
Phone Number	92% filled and accurate	44% filled and accurate
Name of Contact person at the business	Not available	Not available

3.3.2 Interactions with Customers

The extracts that Willdan provided to the evaluation team included a contacts table that tracked program interactions with customers. Willdan uses this information to manage outreach efforts by tracking who contacted the business and when. Better use and design of this table would help Willdan to ensure that sales auditor and installation contractors are following up with customers in a timely manner.

The phone survey with program participants found many instances in which customers said they waited for the program to follow-up with them. The SMART system does not effectively track the current program status of a customer. Adding this functionality would allow Willdan to better manage their customer interactions across a large team of field staff. A regularly updated program status table with one line per customer (with a related "last contact date") that pulls data from the contact, survey and installed-measure tables would allow

implementation staff and Willdan management to easily see which customers require follow-up. While the existing contacts table has fields that refer to customer status, they are not used consistently and do not always clearly indicate whether follow-up is needed. In addition, the contacts table has multiple lines per customer (one per interaction) and is not effectively linked to the survey and installed measures table. Determining the current status of a customer requires looking at several fields across multiple tables.

Program staff does not enter all interactions with customers into the contact table, which limits its usefulness. Approximately 2,400 customers (38 percent) who received surveys do not have an entry in the contact table, so it is clear that a large number of customer contacts go unrecorded. The customer contacts that are recorded in SMART are missing many important pieces of information that would ensure proper follow-through with customers.

Figure 8 summarizes existing key fields in SMART for tracking customer outreach and contacts and analyzes the completeness of the data entered. The existing customer information fields in the table—account number and business name—are well populated.

Figure 8. Completeness of Data Fields in the Contacts Table from August 10, 2010 Extract

Existing Fields in SMART	Description of Field Contents	Con Edison (28,319 records)	O&R (5,559 records)
Account Number	Utility account # (linking variable)	100% filled	100% filled
Business Name	Name of business on account	100% filled.	Not used
Date of Contact	Date of SBDI contact	> 99%filled and within expected range.	Missing for top 5,000 mailer. 83% filled for non-mailer records (324/379).
Type of Contact	Type of interaction Mix of • limited descriptive types, and • open-ended entries.	5% filled	100% filled for top 5,000 mailers. 35% of non-mailer records filled.
Other Comments	Open-ended description of communication	77% missing Inconsistent level of detail.	Not used

Existing Fields in SMART	Description of Field Contents	Con Edison (28,319 records)	O&R (5,559 records)
Marketing Contact	SBDI staff person	Mix of people's names, initials, and business names. >99% filled	Not used
Reason	Summarizes the results of the interaction	65% filled Free form text fields with no standard categories (524 unique entries).	Not used
Audit Scheduled Reason	Summarizes the results of the interaction	Not used	40% of non mailers filled. 100% mailers missing 19 unique entries

We found three major issues with the contacts table:

- Inconsistent use of the marketing contact field – this field is designed to capture the SBDI staff who talked to the customer, but staff record company name rather than staff person's name in many cases. This makes follow up with customers more difficult if the content of the interaction is not fully captured in the database. We recommend having separate fields to track the staff person's name and company.
- No status field – there is no field that adequately identifies whether after the interaction the customer is finished with the program or what the next steps with the customer are. As discussed later, customer follow up is an issue with the program that many have identified.
- No customer contact name, direct telephone number or e-mail address at the business – not knowing who at the business interacted with the program impedes program follow up.

Information associated with characterizing the actual interactions with customers, for example, type of contact, content of contact, name of implementation staff, is missing in many instances and would be of more use to the program if the fields had limited options for entry. Existing fields in the contact table that would benefit from look-up tables include:

- Type of Contact (limit to 6-8 types, e.g. incoming call, outgoing call, email),
- Marketing Contact (one record per staff person that includes company name, telephone number, email address), and

- Reason/Audit Scheduled Reason (limit the types of reasons that an energy survey was not completed or scheduled, e.g., decision-maker not present, decision-maker refused, gatekeeper refused, business closed).

3.3.3 Energy Survey Information

When sales auditors and turnkey contractors complete energy surveys, they must fill out an Excel-based workbook (i.e., SBDI Savings Tool) with the survey results and upload the file to the SMART system. The program tracks energy survey data in two separate tables: one table that contains basic tracking information for the energy survey itself (the survey table) and one table that tracks the auditor's recommendations (recommended measures table).

Survey Table

The survey table has fields to track all the necessary information about the energy survey. For the most part, however, the fields are not consistently filled out as shown in Figure 9. The customer information fields are in the best shape. With a few exceptions (less than 3 percent), the table has valid information entered for account numbers, business names, customer addresses, and phone numbers. Customer contact person names are entered but, in many cases, a first name only is listed. The customer contact person's position in the company is usually missing.

The primary data entry concerns are in the "auditor name" field, "auditor company" field and the date that survey results were provided to customers. Willdan employees often entered their own name rather than "Willdan" in the auditor company field. Most surveys recorded did not have a date that survey results were provided to the company. Improvements in using this field may help with timely program follow up.

Figure 9. Completeness of Data Fields in the Survey Table from August 10, 2010 Extract

Information	Con Edison (5,592 records)	O&R (585 records)
Account Number	100% filled and accurate	100% filled and accurate
Business Name	100% filled	100% filled
Service Address entered by sales auditor	>99% filled	100% filled
Name of Contact Person at the business	>99% filled Many first name only.	100% filled Many first name only.
Phone Number	98% filled and accurate	98% filled and accurate
Date of Energy Survey	>99% filled and accurate	>99% filled and accurate
Auditor Name	95% filled	>99% filled

Information	Con Edison (5,592 records)	O&R (585 records)
	Many only first name or initials	Many only first name or initials
Auditor Company	>99% filled Many personal names. Several misspellings.	100% filled Many personal names.
How Company got introduced to Program	96% filled Several misspellings.	98% filled
Date that Energy Survey Results were Provided	31% filled and accurate	<1% filled and accurate

For each completed energy survey, the SMART system should also allow sales auditors to record likelihood of participation, perhaps as 25 percent, 50 percent or 75 percent. This would help with prioritization of follow-up efforts to turn the energy survey results into sold projects. Free Lighting Corporation uses this approach on Staten Island to better manage their pipeline of prospective projects.

Recommended Measures Table

As shown in Figure 10 below, fields in the recommended measures table are well populated. Only the field for "Operating Hours per Year" had less complete information than expected. We also could not tell if the missing existing measure descriptions reflected a lack of an existing measure or whether they were data entry errors. We recommend adding a "No Existing Measure" option to the field in order to clarify this issue.

Figure 10: Completeness of Fields in the Recommended Measure Table from August 10, 2010 Extract

Information	Con Edison (38,785 records)	O&R (5,866 records)
Account Number	100% filled and accurate	100% filled
Business Name	100% filled	100% filled
Existing Measure Description	89% filled	81% filled
Existing Total kW	100% filled	100% filled
Recommended Quantity	>99% filled	>99% filled
Recommended Measure Description	100% filled	100% filled
Recommended Measure Type	100% filled	100% filled
Recommended Total kW	100% filled	100%filled

Information	Con Edison (38,785 records)	O&R (5,866 records)
Business Type	100% filled	>99% filled
Operating Hours per Year	82% filled	95% filled

The recommended measures are tracked in great detail with descriptions that allow for very specific energy calculations and site verification. For example, measure descriptions for linear fluorescent tube lighting list the number of bulbs, type of bulbs, and ballast types. In all there are 446 measure types listed in the measure description field labeled "recommended fixture description."

The database categorizes all linear fluorescent lighting measures as "tube lighting," which is too vague a category to provide a detailed understanding of what types of tube lighting the program is recommending. The inclusion of an additional field that distinguishes three major types of linear fluorescent lamps: T8s, high-performance T8s, and T5s, would help the program to assess when high-efficiency lighting is being recommended versus standard efficiency lighting.

Installed and recommended measures are not directly linked through their unique IDs. This makes it difficult to determine the rate at which participants adopt individual recommendations. The database does not indicate where in the business the recommended measure is to be installed. This makes it challenging to complete verifications.

3.3.4 Scheduled and Installed Measures

The SBDI database tracks installed measures and scheduled-for-installation measures in a separate table from recommended measures. When sales auditors and turnkey contractors close a sale (i.e., customer agrees to the project), they must upload a copy of the signed work order to the SMART system. All measures included on approved work orders are included in this table. Figure 11 shows the key fields and the completeness of the data in the scheduled and installed measures table.

Figure 11: Completeness of Data Fields in Scheduled and Installed Table from August 10, 2010 Extract

Information	Con Edison (26,051 records)	O&R (5,178 records)
Account Number	100% filled and accurate	100% filled and accurate
Business Name	100% filled and accurate. Field is labeled "Contact Name."	100% filled and accurate. Field is labeled "Contact Name."
Contractor	100 percent filled Several misspellings	100 percent filled Several misspellings
Replacement Measure	100% filled	100% filled
Original Measure	99% filled	>99% filled
Type of Measure	100% filled	100% filled
Location (within facility)	96% filled	96% filled
Annual Operating Hours	98% filled	100% filled
KWh Savings	100% filled	100% filled
KW Savings	100% filled	100% filled

The table of installed measures does not include a business address field. The address associated with the installed project comes from the survey table and customer information provided by each utility. In July 2010, the third-party verification conducted by Nexant reported that two out of 138 sites they visited could not be found at the address listed.[20] Similarly, in September 2010, Nexant reported that two out of 132 sites they visited could not be found at the address listed.[21] All program participant addresses listed in the database should correspond to a verifiable project site.

Willdan uses a date field, "actualinstalldate," to determine which measures have been installed. If a date is listed in this field, then a measure was installed. The table includes a status field for each measure to indicate whether the measure is pending, installed, or cancelled. The evaluation team found that this field is not always consistent with the date field that the program uses to report results. For instance, some measures are shown as pending, but a date is listed in the "actualinstalldate" field.

[20] Nexant_SBDI_-_Initial_Findings_Memo.pdf. (Memo dated July 30, 2010. From V. Narkaj and S. Gogte to L.Kass, G.Sumner, and J.Giattino)

[21] SBDI-Evaluation_InterimMemo #2.pdf. (Memo dated September 2010. From V. Narkaj and S. Gogte to L.Kass and G.Sumner)

Third-party verification activities conducted by Nexant have shown instances where the tracking database does not accurately reflect whether a project had been installed. Out of 132 sites inspected during the summer of 2010, four projects listed in the SMART system as completed were not yet installed.[22] (This is in addition to the two project sites that could not be located at the listed address.) Having a status field that agrees with the measure status, used for reporting, and either deleting or more accurately naming the inconsistent status field would add clarity to the database.

Overall, the program tracks the details of installed measures effectively. Like the recommended measures, the precise ballast, fixture, and lamp combinations installed and replaced are all tracked for lighting measures, allowing for very detailed savings estimations and specific site verification.

Similar to the issues associated with the customer contact table and the energy survey table, information about the contractor responsible for the installation is not tracked well. Contractor-level information is tracked poorly in the database, because the field that identifies the contractor does not have a restricted range of values. In the installed measures table, several contractors have multiple spellings of their company's name and "none" is listed as the contractor for several pending measures. We recommend adding a look-up table for each contracting company to restrict the values entered in this field.

[22] SBDI-Evaluation_InterimMemo #2.pdf. (Memo dated September 2010. From V. Narkaj and S. Gogte to L.Kass and G.Sumner)

3.4 MARKETING APPROACHES

In this section, we examine how the Con Edison and O&R SBDI programs are marketing their programs to increase general awareness and promote participation. The review is based on in-depth interviews with program staff, implementation contractors, sales auditors and turnkey contractors, as well as phone surveys with non-participants and participants. The evaluation team also assessed the marketing materials developed by Con Edison and O&R.

Initially, Willdan was responsible for developing marketing collateral materials. Con Edison and O&R found that they were not meeting imposed timeframes. As a result, Con Edison took the lead to develop the marketing collateral during the first SBDI program year, with O&R modifying the approved templates for its own use. Both utilities relied on street sweeps to increase the visibility of the SBDI program and to contact eligible customers directly to inform them about the program. Both utilities focused on getting the word out through presentations at community events to increase awareness in the small business community. O&R also targeted municipalities and its 5,000 largest eligible customers with direct mail. Both utilities faced stiff challenges differentiating the SBDI program from the marketing efforts of ESCOs, which were trying to sell electricity to the same small business customers.

During this time, both Con Edison and O&R had few marketing materials. Con Edison's efforts to develop marketing materials required internal coordination among multiple departments. Early development of marketing materials was slow, due in part to lengthy review and approval processes within Con Edison and in part to unsatisfactory design from subcontractors. Con Edison's processes and responsibilities for approval were unclear to staff within Con Edison and Willdan.

In the latter part of 2010, both utilities ramped up activities to develop marketing materials for the SBDI program. Furthermore, each utility's marketing approach became more customized to address changes in overall corporate approaches and the differences in their eligible populations. Con Edison increased branding of their energy efficiency programs originally as the "The Power of Green " and then switched over to the "Green Team Campaign" concept once marketing efforts gained traction. O&R coordinated with Willdan and re-branded the small business direct install program as the "Lighten Up" program and ceased using the SBDI marketing materials originally developed by Con Edison.

Below, we provide a more detailed assessment of each utility's marketing approach, marketing materials, and effectiveness of marketing efforts.

Con Edison Marketing Activities

Over time, Con Edison has taken a more significant and active role in marketing the SBDI program. Willdan initially had responsibility to develop marketing materials for the Con Edison SBDI program. For most of the 2010 program year, SBDI marketing materials were extremely limited. This was due to lengthy review of implementation-contractor draft materials and

unclear processes for coordinating between multiple Con Edison departments. To streamline the development of SBDI marketing materials, Con Edison removed marketing from Willdan's contract in March 2011. Con Edison is now taking the lead to develop marketing materials and to incorporate SBDI advertising under the "Green Team" umbrella awareness campaign. (Note that the switch to the "Green Team" marketing campaign occurred after the process evaluation team had largely completed its research activities.) Willdan is focusing on street sweeps, with Con Edison representatives accompanying Willdan sales auditors and turnkey contractors since late 2010, on a daily basis, to help sell the program.

Con Edison had previously approved additional SBDI-specific marketing materials, consisting of the following items:

- SBDI flyer in multiple languages,
- Sales kit pamphlet, and
- Information on the utility website

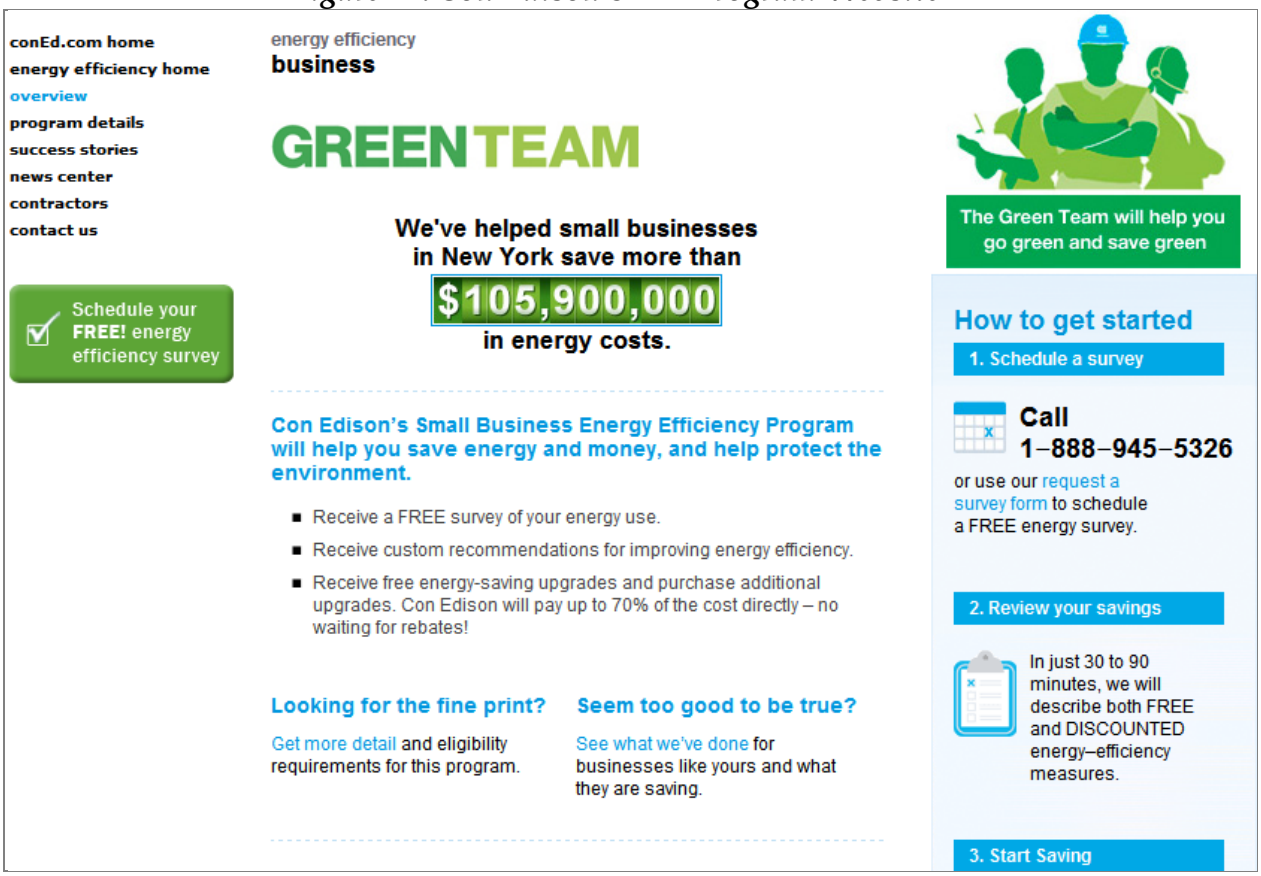
SBDI flyers. The SBDI flyer is a 5"x8" marketing piece that highlights how the program will help small businesses save energy and money. The flyers have been translated into different languages, including Spanish, Chinese, and Korean. They all feature photos of young women as the graphical point of interest. Sales auditors and subcontractors mentioned that some very conservative ethnic or religious communities found the images distasteful. The flyers feature the implementation contractor logos to the left of the Con Edison "Power of Green" logo.

Sales kit folder and inserts. The sales kit folders are #10 envelopes with inserts that can be included as a leave-behind collateral piece for eligible businesses. The folder is clearly branded as Con Edison "Power of Green," with no mention of the specific implementation contractor. The inserts list the free and reduced-cost measures offered by the program. The inserts also clearly describe the program participation steps as: (1) Free energy survey, (2) Installation of free measures, (3) Incentive of 70 percent on specific energy upgrades. The inserts do not include the implementation contractor logo (for Willdan or Free Lighting) but do include a sentence that says the program is implemented by them. There is a separate insert for Willdan and Free Lighting, which is identical except for this sentence.

Website. The Business webpage that is linked from the "Power of Green" webpage does not include any information related to the SBDI program.[23] It is difficult to access the official SBDI website unless you know the exact web address. The evaluation team was not able to identify a way to navigate to the SBDI website from the Con Edison homepage. Figure 12 provides a screenshot of the program website, which includes program details, eight success stories, news articles related to SBDI, and a list of SBDI subcontractors to Willdan and Free Lighting. The success stories are quite generic by business type, which limits their usefulness as case studies for other eligible businesses to relate to. The 1-888 phone number listed is Willdan's direct line.

[23] http://www.coned.com/thepowerofgreen/business.asp#

Figure 12. Con Edison SBDI Program Website[24]



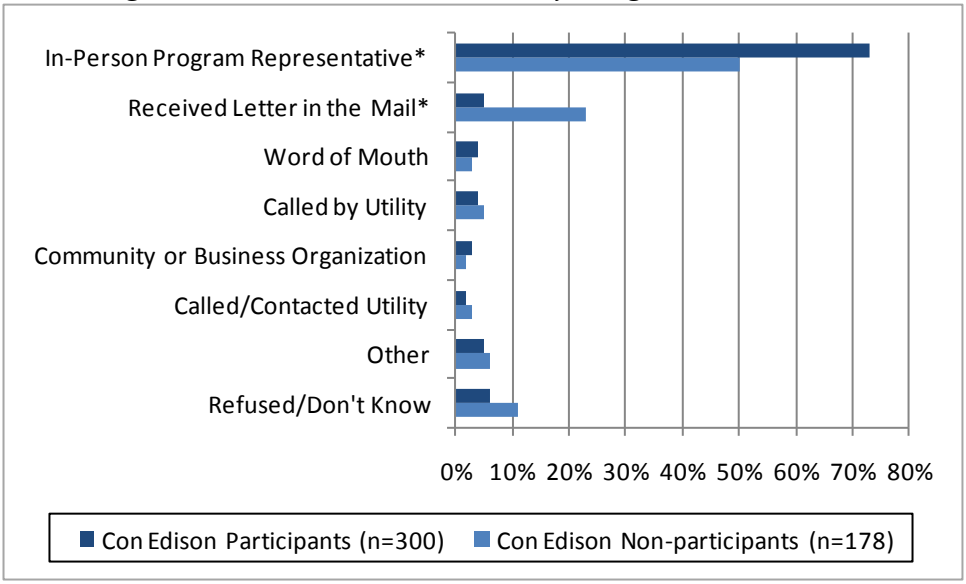
The sales auditors and turnkey contractors in the field rely on marketing materials for credibility and to overcome the concerns of business gatekeepers who are responsible for dealing with door-to-door salespeople. The materials are also left behind for businesses that are unable or unwilling to complete an energy survey at the time. The materials must appeal to the target population and be recognized by the eligible businesses as a legitimate Con Edison program.

In addition to the marketing materials, Con Edison has recently approved specifications for T-shirts and jackets for implementation contractors and subcontractors. Con Edison has also approved business cards for implementation contractors and subcontractors that contain the Con Edison logo. Using the Con Edison "Green Team" branding, these items are intended to make sales auditors and subcontractors recognizable as legitimate representatives of a Con Edison program. As of March 2011, however, implementation contractors reported that SBDI field staff have not yet received these materials.[25]

[24] http://www.conedsmallbusiness.com/
[25] Con Edison staff indicates that field staff received these materials in July 2011.

Street sweeps are the key strategy used by Con Edison to market the SBDI program to eligible small businesses. As shown below in Figure 13, the majority of program participants and non-participants recall hearing about the SBDI program in person through a program representative. As stated previously non-participants are defined as eligible businesses that were contacted by the program (and may have received an energy survey) but did not go on to install any free or reduced-cost measures.

Figure 13. Con Edison – Source of Program Awareness



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Although the SBDI program is focused on small businesses, the eligibility requirements are specific to individual facility locations. Some of these eligible facilities are part of chain accounts. According to interviews with corporate decision-makers at chain accounts, they are unlikely to learn about programs from local in store contacts. Chain accounts are more likely to hear about the SBDI program through word-of-mouth and outreach (e.g., phone calls) from Con Edison and Willdan to the corporate office.

O&R Marketing Activities

While O&R was ramping up the program in early 2010, marketing activities were limited to ensure that Willdan could handle the volume of customer leads. The main marketing approaches were direct mail and presentations to local business organizations. Few additional marketing materials were available due to Willdan delays in developing collateral. In the fourth quarter of 2010, Willdan hired The Byne Group to develop a marketing campaign for O&R, The program was subsequently re-branded as the "Lighten Up" program. The "Lighten Up" name was meant to be catchy and to debunk the idea that efficient lighting is less bright. O&R also began to develop its own marketing materials using "Lighten Up" branding.

O&R continues to develop its relationship with local business organizations and associations, such as Rotary Club, Chambers of Commerce, and the Rockland Business Association. The O&R SBDI-specific marketing materials now consist of many items, including the following:[26]

- Direct mail letter,
- Blitz ads with SBDI participating companies,
- "Lighten Up" highlight sheet,
- Sales kit folder, and
- Information on the utility website.

Direct Mail. O&R has sent three separate mailings to eligible small business customers. The one-page letters introduce the program and highlight the free energy survey, free measures, and 70 percent incentive for program measures. The letters were mailed in the following months:

- November 2009 – Sent to 5,000 largest eligible small businesses
- March 2010 – Sent to same 5,000 as November mailing, plus local municipalities with eligible facilities
- February 2011 – Sent to 9,000 largest eligible small businesses

Anecdotally, O&R program staff estimated a two percent response rate to the March 2010 mailing. Each time, the letters were mailed directly to whomever the utility bill is typically sent. The letters were not addressed to specific people at the eligible business, because this information was not available from the O&R customer information system (i.e., billing system.)

Blitz ads. The blitz ads succinctly highlight the businesses that have participated in the Lighten Up program (e.g., Compass Motors Lightened Up!). No other information is provided besides the program website address, the 1-877 toll-free phone number for the O&R program, and the O&R logo. (There is no mention of Willdan.) The blitz ads were run monthly in two local business journals to further raise awareness of the program.

Highlight Sheet. The Lighten Up highlight sheet contains specific information about the program, including example reasons why the program measures would benefit small businesses. The highlight sheet focuses on the reduced-cost measures and describes how the program-sponsored efficient lights will improve overall light quality, appeal to customers, and reduce future maintenance costs. The sheets even include pictures of the program measures to help small business customers visualize the equipment and understand what is being offered. The highlight sheet is handed out at business events attended by O&R and Willdan staff and by sales auditors to interested eligible businesses.

Sales kit folder. The sales kit folder is an 8.5" x 11" bright orange O&R folder that contains program brochures, a large Lighten Up notepad and the O&R program manager's business card. The sales kit folder is used during program outreach events such as meetings with local business associations and has been provided to Willdan for use by its subcontractors.

[26] According to O&R staff, color print ads were also done for four consecutive Sundays.

Website. On the O&R main homepage, the Lighten Up program is prominently highlighted. This makes it easy for anyone visiting the O&R website to learn about the SBDI Lighten Up program, even if they were not aware the program existed. The website links to a new micro-site created for the O&R Lighten Up program. Figure 14 provides a screenshot of the Lighten Up micro-site homepage. The website is clearly branded as O&R, and the homepage includes testimonials from local businesses.

Figure 14. O&R SBDI Lighten Up Program Website[27]

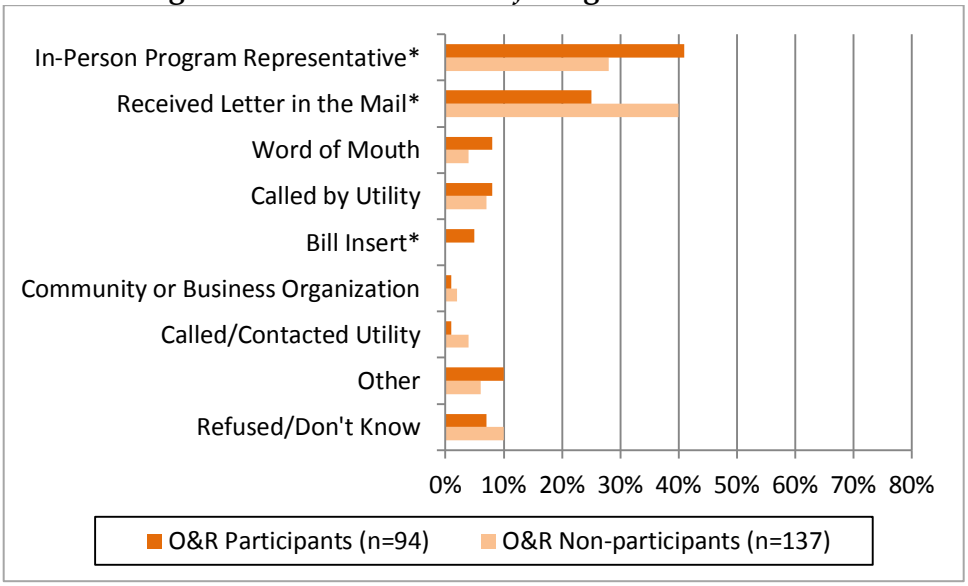
[27] www.lightenupnow.com

Willdan has primary responsibility for developing the marketing materials in the O&R service territory and has subcontracted with The Byne Group. New folders and information flyers are now being printed for the SBDI Lighten Up program.

In addition to the marketing materials, O&R started running radio ads in April 2011 which aired for two weeks each month (48 spots per week). Starting in October 2011, the radio ads will be increased to weekly spots (36 spots per week). In the latter part of 2011, O&R also focused on developing a customer testimonial campaign for newspapers and journals.

The evaluation team surveyed O&R program participants and non-participants, based on the August 2010 extract from the Willdan tracking database, to assess sources of program awareness. Figure 15 shows that most O&R participants and non-participants heard about the program in person. However, a significant number of O&R survey respondents also remember receiving a letter in the mail.

Figure 15. O&R – Source of Program Awareness



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

The direct mail letters and general awareness campaigns (e.g., newspaper ads, radio, and so on) are important activities, because they build credibility for the sales auditors who go door-to-door soliciting. If an eligible business is aware of the program, they are less likely to question the legitimacy of a sales call for the SBDI program.

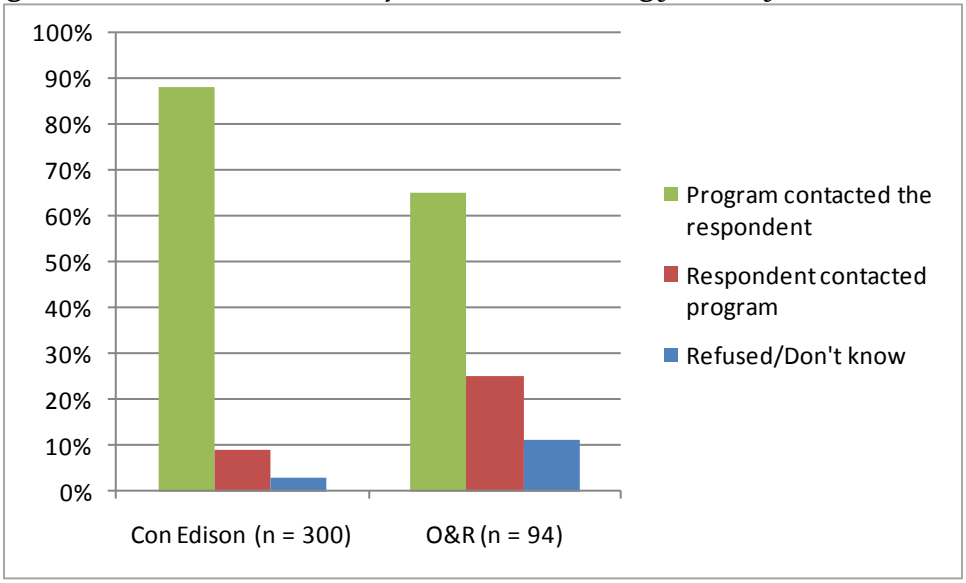
O&R marketing efforts are continuing to ramp up for the SBDI program, and multiple channels are being pursued simultaneously. The materials emphasize that O&R is the sponsoring utility, with the O&R logo located to the left of the Willdan logo (when present). This is an important branding strategy to help eligible businesses recognize Lighten Up as a program sponsored by their trusted utility. Furthermore, sales auditors and turnkey contractors state that it is very important to use example projects to help show the legitimacy of the program and make the

projects more tangible. O&R is seeking to focus on these types of case studies to help increase participation in the Lighten Up program.

3.5 Customer Acquisition

Customer acquisition refers to the energy survey and closing-the-sale process with eligible businesses agreeing to have the program measures installed. In this section we examine the street-sweep approach, challenges to reaching the right decision-makers and drivers and the barriers to eligible businesses agreeing to the free energy survey. We also assess the effectiveness of the energy survey process to lead customers to install program measures. Figure 16 shows that most program participants completed an energy survey as a result of being approached by the program, rather than initiating contact (resulting from mass marketing). In Con Edison territory, both Willdan and Free Lighting relied heavily on the street-sweep method using their own staff as sales auditors.

Figure 16. How SBDI Participation in the Energy Survey was Initiated



In O&R territory, the street-sweep method is also an important strategy for outreach. In contrast to Con Edison, however, O&R is expanding the proportion of turnkey contractors to complete the sales and energy surveys. Turnkey contractors are responsible for sales, energy surveys, and the installation of program measures. It is unclear what strategy most turnkey contractors plan to employ to identify opportunities. Approximately one-quarter of O&R program participants surveyed, however, took the initiative to contact the program, most as a result of the direct mailing.

3.5.1 Assessment of Street Sweep Approach

In August 2010 the evaluation team conducted ride-alongs with Willdan sales auditors in both Con Edison and O&R territories. According to the June 2010 revision to the Willdan SBDI Marketing and Program Implementation Plan for Con Edison, the uniform worn by field staff

would consist of a short-sleeved, collared shirt, a jacket and a badge. During the field observations, the Willdan sales auditors had a badge but no other identifying clothing or materials aside from the program marketing materials.

The evaluator spent one full day with a Willdan sales auditor conducting a street sweep in a specific zip code. The Willdan office provided the sales auditor with a list of sites to visit based on the Con Edison eligible customer list. The list contained the business name, address, a contact person (if they had been contacted) and the kW usage for the business. Willdan instructed the sales auditors to first visit the largest businesses, based on demand and highlighted on the list. After visiting one of the larger businesses, the sales auditor identified other businesses on the list in the immediate area to visit.

During the ride-along, approximately one-half of the businesses approached refused the sales call and the remainder either had no opportunities for program measures or the decision-maker was not on site that day. Overall, it was challenging to find the appropriate decision-maker at businesses, because they were either not present or not accessible because of a gatekeeper (e.g., receptionist). Some businesses were also suspicious of the sales call. Only two energy surveys resulting in recommendations were completed. The sales auditor also encountered significant language barriers. The evaluation staff observed that the door-to-door method appeared difficult and labor intensive.

One half-day was spent with a Willdan sales auditor in O&R territory. (In the summer of 2010, there were two Willdan sales auditors in the O&R territory.) No door-to-door efforts were observed. Instead the evaluator accompanied the sales auditor to a scheduled energy survey that the customer initiated in response to a direct-mail solicitation. The O&R sales auditors reported during in-depth interviews that they also conduct door-to-door solicitations. At the time, however, Willdan indicated that the sales auditors were not working in any specific territory or market and were waiting for leads to come in.

Sales auditors emphasized the importance of locating the decision-maker at the small business location. Furthermore, businesses often have gatekeepers who may or may not allow entry. For instance, in offices the sales auditor has to sell the receptionist on the program first. If the gatekeeper determines that the program is not of interest, because they assume it is another attempt to sell them something, the program information will never be presented to the appropriate decision-maker. Therefore, sales auditors in both Con Edison and O&R service territories must be readily identifiable as a legitimate and credible representative of the respective utility program.

The evaluation assessed how well non-participants recalled their interactions with the program. The results of the phone survey showed that only 33 percent of Con Edison and O&R non-participants could recall receiving information about the program. Of the non-participants who recalled the program, only 50 percent remembered being offered a free energy survey for their

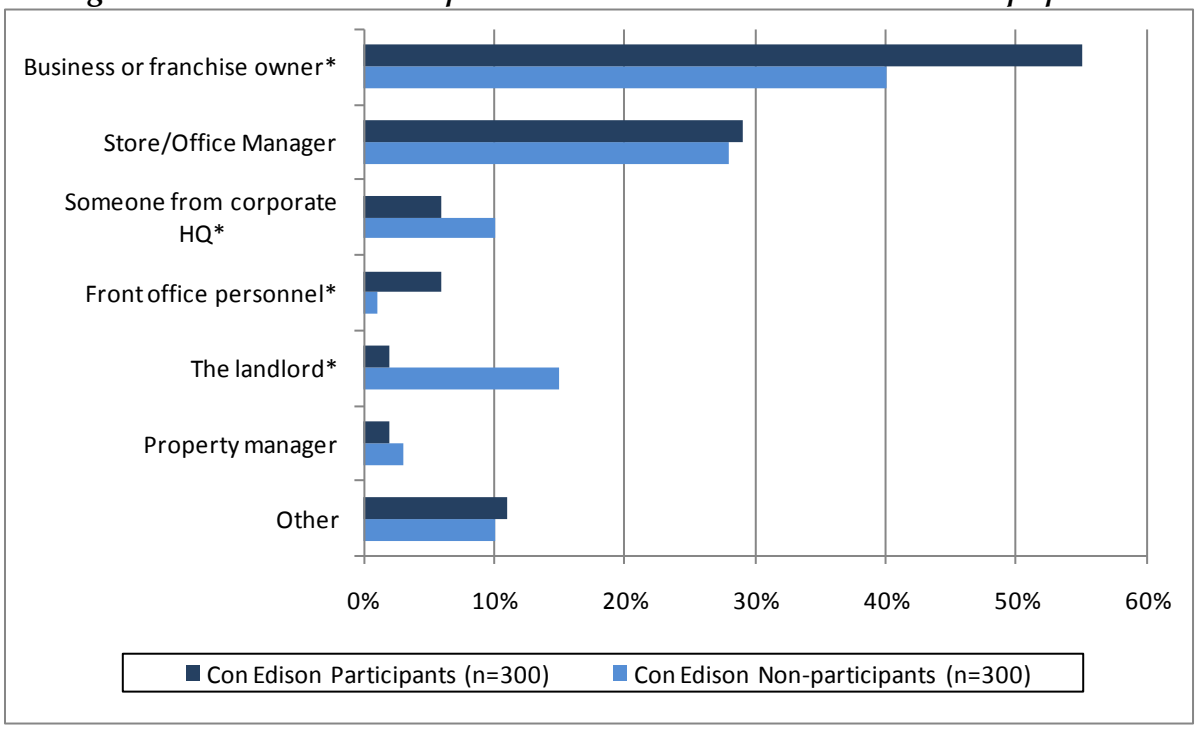
business. The recall rate was the same for both utilities when the phone survey was conducted in late 2010.

3.5.2 Reaching the Appropriate Small Business Decision-maker

In order to successfully sell the SBDI program to a small business, program sales auditors must reach the person responsible for making decisions related to the lighting and other program measures. This is one of the most significant challenges to successfully engaging small business facilities eligible for the program. One of the evaluation objectives was to better identify the decision-makers and how to engage them.

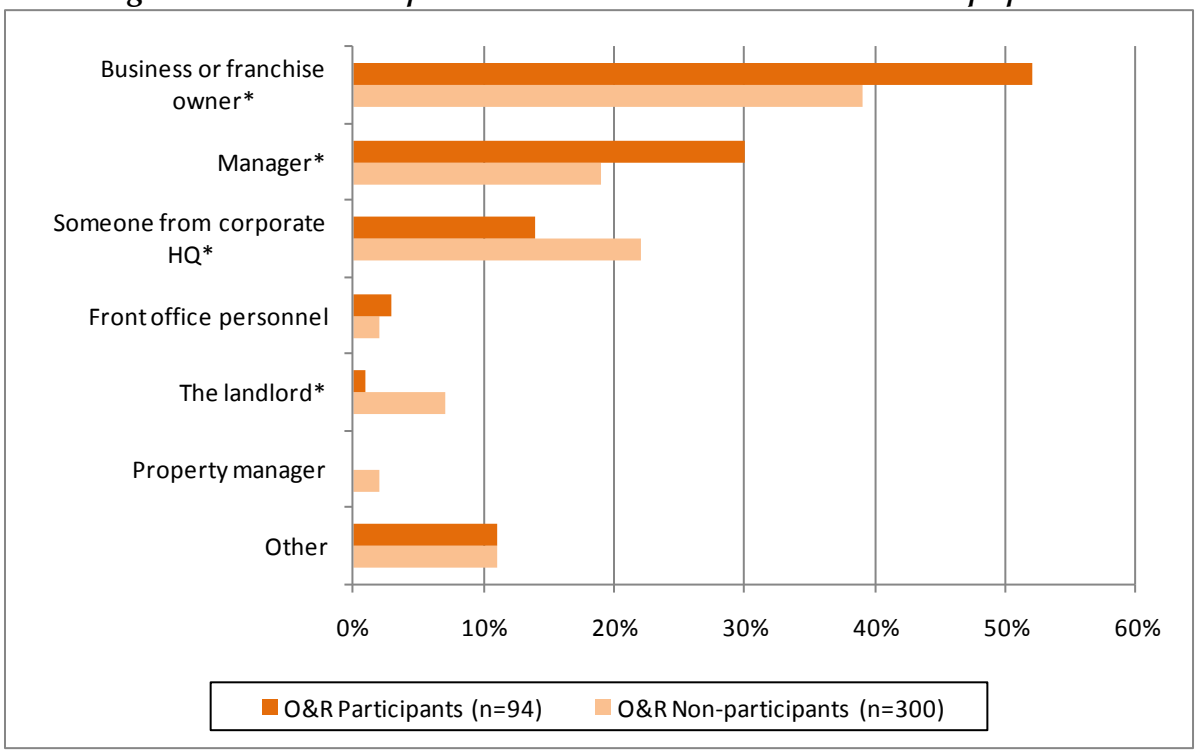
Figure 17 and Figure 18 show that the business owner or manager is most frequently mentioned as being involved with making the decision whether to install the recommended equipment. Furthermore, the business or franchise owner was most frequently mentioned by survey respondents as the *primary* decision-maker. However, program non-participants are more likely to report that landlords or someone from a corporate headquarters are involved with making decisions regarding equipment installations. If the decision-maker is not typically present at the small business location, then the business is less likely to participate.

Figure 17. Con Edison –People Involved with Decision to Install Equipment



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

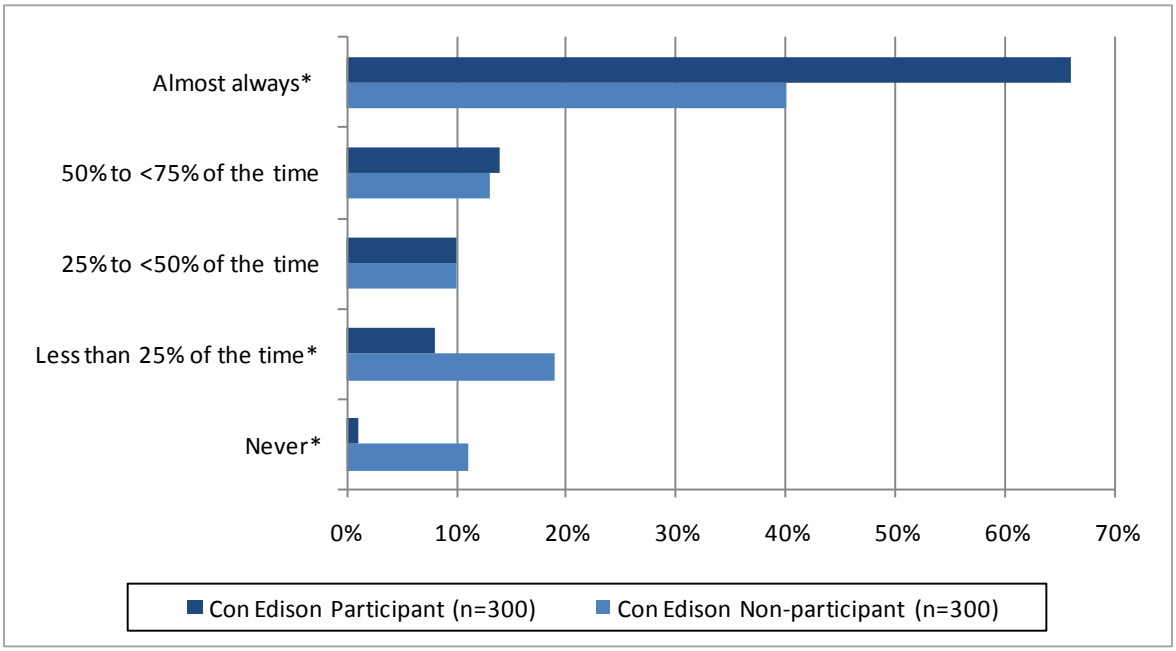
Figure 18. O&R – People Involved with Decision to Install Equipment



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

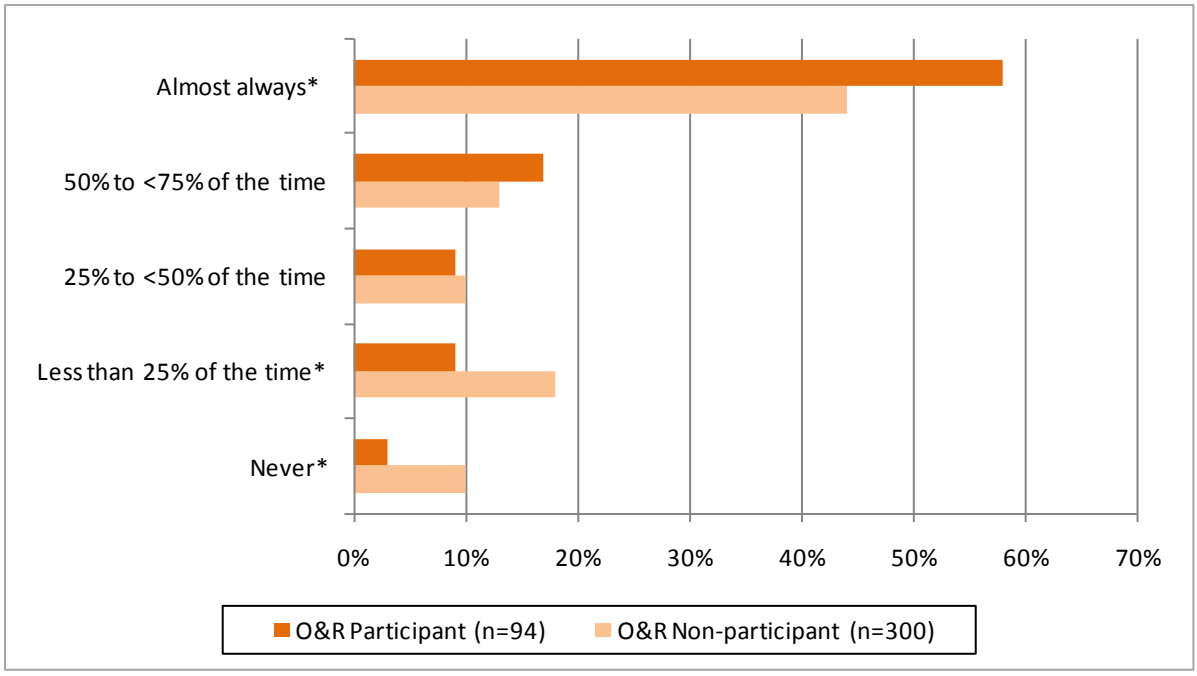
Figure 19 and Figure 20 show that the SBDI program in both the Con Edison and O&R service territories has been most successful engaging businesses where the decision-maker is frequently located at the business location. Non-participating businesses surveyed were more likely to state that the primary decision-maker seldom spends time at the business facility contacted by the program.

Figure 19. Con Edison – Percent of Business Hours that Decision-maker Spends at the Business



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 20. O&R – Percent of Business Hours that Decision-maker Spends at the Business

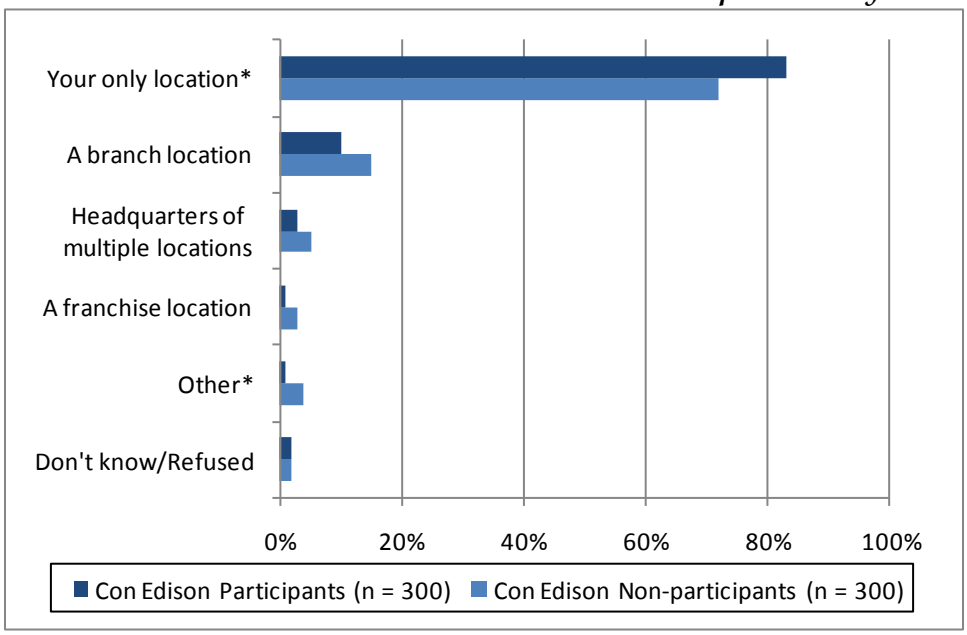


Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

To date, the majority of program participants have been independently and individually owned businesses in both Con Edison and O&R territory. Figure 21 and Figure 22 show that the

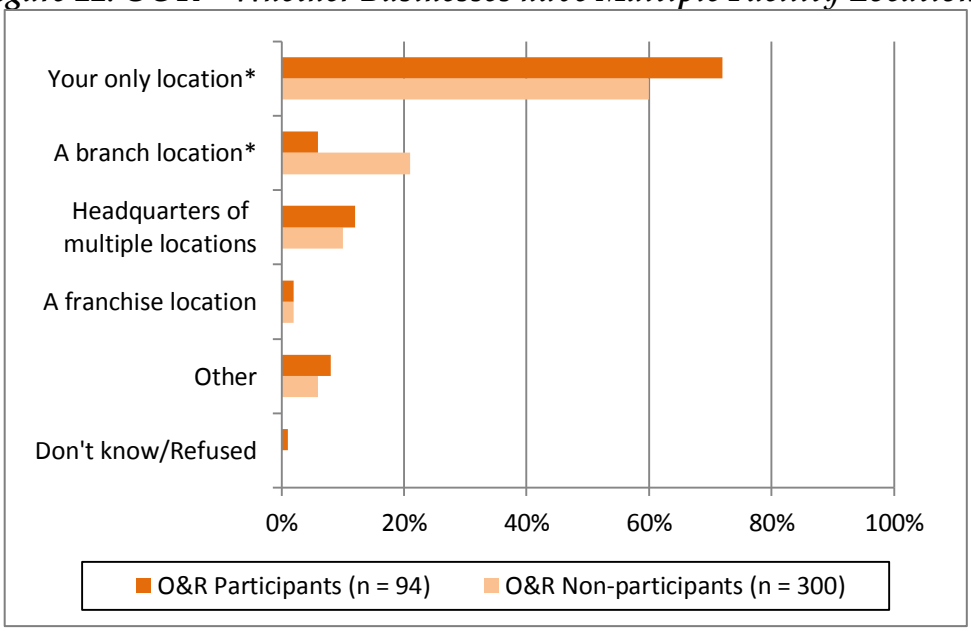
program has more successfully engaged businesses with single store locations. These types of businesses are more likely to have a decision-maker present when program representatives visit, compared to chain accounts.

Figure 21: Con Edison – Whether Businesses have Multiple Facility Locations



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 22: O&R – Whether Businesses have Multiple Facility Locations



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Chain accounts differ from other small businesses in key ways important to the program. First, decisions regarding energy using equipment at each location may be made at the corporate (not local) level. Second, chain accounts tend to have more access to capital than independently owned businesses, making the upfront cost barriers less of an issue. Third, once the company decides to participate in the SBDI program, the decision is likely to apply to more than one account.

Chain accounts require more effort upfront to identify and engage corporate decision-makers. They also require more program effort to work through corporate decision-making processes. The total potential energy savings associated chain account program participants is significantly greater than with individually owned businesses. To better achieve the 2009-2011 SBDI program savings goals, both Con Edison and O&R must engage chain accounts with multiple eligible facility locations. O&R chain businesses may differ from those in Con Edison territory. O&R staff indicates that most of the drugstores in their utility territory are not eligible for the SBDI program.

Reaching the Decision-maker at Chain Accounts

Sales auditors report significant challenges accessing and engaging decision-makers at individually owned businesses. These challenges are magnified at chain account locations. Not only is the decision-maker not located at the facility location, they may not be located within the State of New York. The program has tried to conduct outreach at the individual chain store levels, but the information seldom transmits up to the decision-maker levels. Below, we examine program procedures for engaging chain accounts and how they can be improved.

The Willdan Con Edison Contractor Manual (v3.1) provides the following instructions to subcontractors conducting street sweeps. Chain accounts are defined as "any national chain, or any local business that has nine or more locations within Con Edison's service territory." Subcontractors are instructed to call or email the Willdan marketing representative and provide the name of the chain account, the customer contact and number of store locations which the chain account operates within Con Edison service territory.

In Con Edison territory, there is one Willdan employee responsible for chain accounts, as well as a single Con Edison account executive who handles retail chain accounts. The account executive supports Con Edison and Willdan in reaching out to eligible customers and have brought many chain accounts to the program. Early in the SBDI program launch, the account executive walked around parts of New York City to see which businesses are chain accounts and whether the facilities are less than 100 kW in size. In large part due to the SBDI program and other EEPS programs, Con Edison is building up its relationship with chain account customers. SBDI is also benefiting from the Con Edison Commercial and Industrial Rebate Program, since the program implementer has a large sales team and many pre-existing chain account contacts. There are many chain accounts in Con Edison and O&R territory, which makes the relationship building slow and time-consuming.

The evaluation team completed interviews with 10 chain accounts. In addition to information provided by Con Edison from its customer information system, Willdan and its subcontractors shared contact information for select chain accounts that have been engaged by the SBDI program. Based on in-depth interviews with 10 of these chain accounts, the evaluation team found that the appropriate decision-makers at chain accounts are at the senior executive level (e.g., President, Chief Financial Officer (CFO), Chief Operations Officer, Director of Operations). These staff played key roles in understanding the SBDI program, coordinating the internal processes for completing energy surveys, and compiling the survey results for corporate approval.

For the chain accounts interviewed, all store locations were corporate owned and maintained. None of the individual store locations at the chain accounts have a local person with the authority to replace equipment. All decisions are made at the corporate level, and in most cases, upgrading energy using equipment tends to be initiated by the corporate office. The corporate staff worked with the individual store locations to schedule the energy surveys and installation of program measures.

Although there are many challenges to engaging chain accounts, from difficulties identifying and engaging the proper corporate contact to slow corporate processes and policies, the benefits to the SBDI program are potentially large. Chain accounts have many eligible business locations, which could substantially increase the number of projects completed by the SBDI program. Furthermore, chain accounts tend to have deeper pockets than independently owned businesses, making the upfront cost barriers less of an issue and increasing average savings per project.

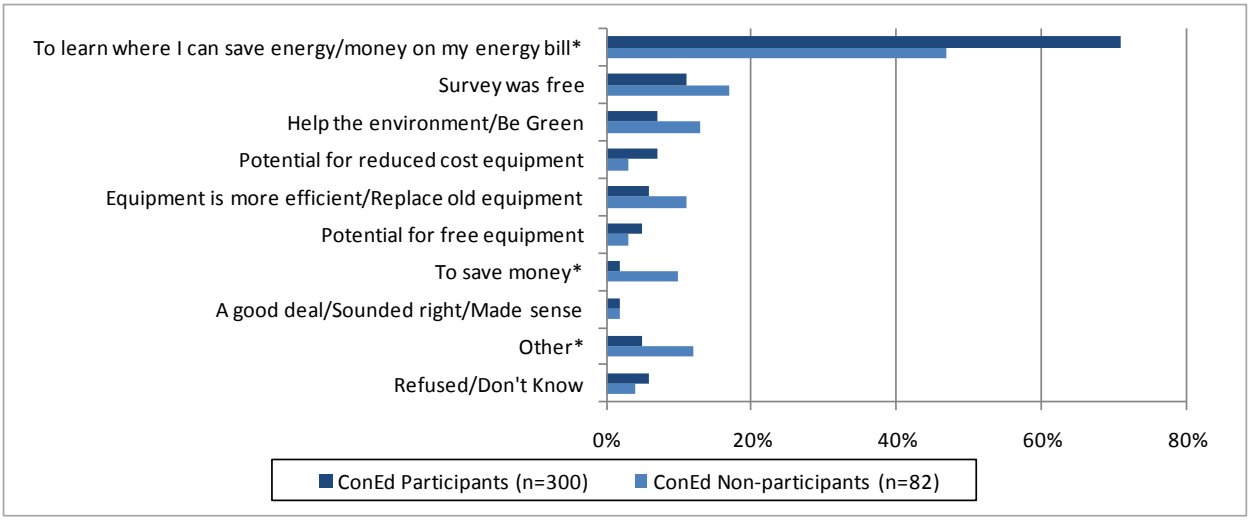
Willdan now has a dedicated staff person focused on chain account participation in the SBDI program. The Willdan staff is most effective in coordinating the participation and addressing chain account questions and concerns about program processes. Con Edison and O&R should continue to provide support to Willdan to assist in initial outreach efforts, including using internal staff to leverage the utility brand recognition to make contact with the appropriate chain account decision-maker and introduce the SBDI program.

3.5.3 Drivers and Barriers to Participation in the Energy Survey

Most eligible businesses were motivated to participate in the energy survey by the desire to learn where their business can save energy and money. The SBDI specific marketing materials developed by Con Edison and O&R emphasize these key benefits for the customer.

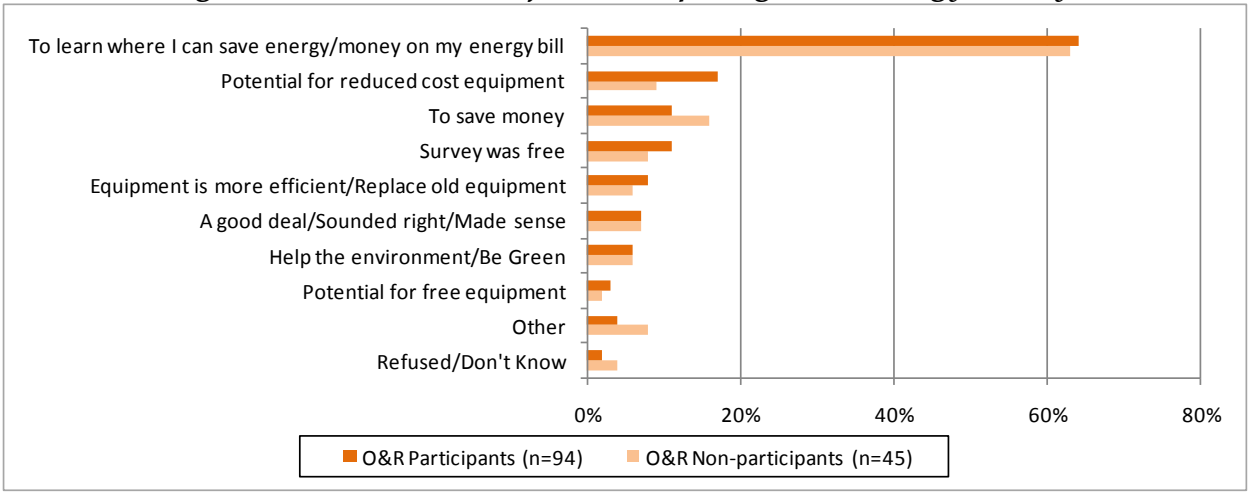
Figure 23 and Figure 24 show that only a small percent of program participants and non-participants (who received an energy survey) said that they were motivated by the offer of free equipment.

Figure 23. Con Edison - Reason for Participating in the Energy Survey



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 24. O&R - Reason for Participating in the Energy Survey



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

For non-participants who recalled the program, but did not complete an energy survey, only 11 and 14 percent of Con Edison and O&R non-participants, respectively, were highly likely to have one within the next six months.

For non-participants not likely to have an energy survey completed, most said that they did not want to spend the money at this time. One non-participant specifically mentioned that business was slow, and they were focusing their efforts on increasing profits. Other businesses said they were simply not interested without explanation. Only a small number said they did not have the authority to act, which suggests that sales auditors are doing a good job seeking out the right contact at businesses and not offering energy surveys to non-decision-makers.

Chain accounts respondents indicate that it is fairly easy to schedule the energy surveys at the individual store locations. One interview respondent said he called to check the references of the vendor before they agreed to proceed.

3.5.4 Energy Survey Process

The purpose of the energy survey is to provide interested small businesses with customized recommendations and cost estimates for the reduced cost measures. Most of the chain account decision-makers were not on-site for the energy surveys at the individual locations. One respondent mentioned, however, that he informed the store managers when the SBDI sales auditors were coming. This was an important step to assure on-site staff that the sales auditor was legitimate.

According to documented program procedures for Willdan, the energy survey begins with a discussion with the decision-maker. The customer is asked to confirm their account number with the eligible customer information provided to the sales auditor by Willdan. Based on the field observations, this process appears to be followed.

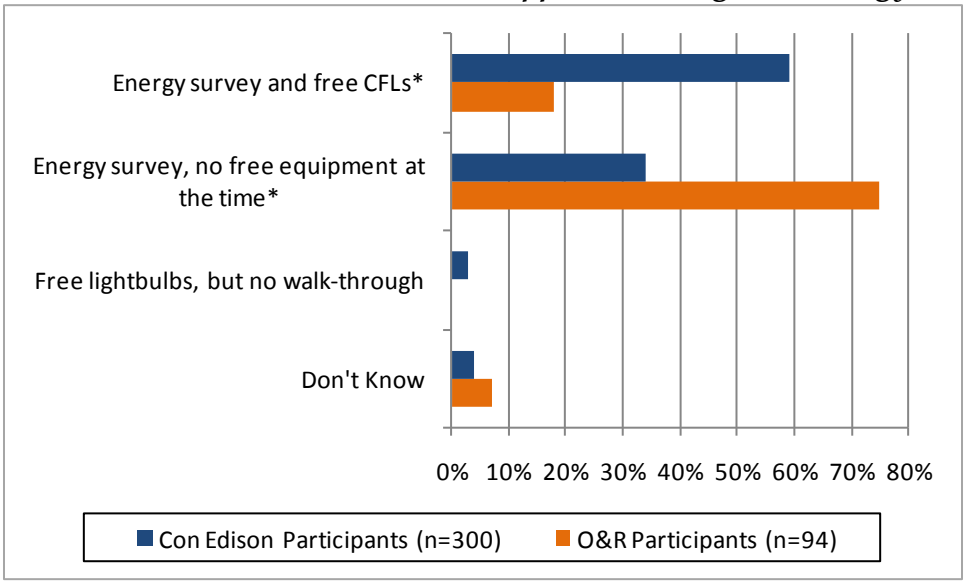
The sales auditor then conducts the walk-through of the facility to inspect lighting, water heating and HVAC systems for opportunities to install program measures. During the field observations, the sales auditor's goal is to find opportunities for program measure installation. During the field observations in both the Con Edison and O&R service territories in August 2010, evaluation team rode along with two sales auditors. We observed both auditors discussing potential energy efficiency opportunities with businesses and then attempting to document the appropriate baseline equipment.

Sales auditors identify inefficient equipment for replacement, determine its specifications and recommend retrofit measures based the program measure list. This list matches baseline equipment with specific program measures.

In-depth interviews with Con Edison program participants showed that early in the program, some sales auditors were leaving CFLs with businesses. In some cases the business did not recall the sales auditor conducting a walk-through and stated that no energy survey had been completed. While these instances were found during preliminary in-depth interviews, the participant phone surveys do not show this as prevalent.

Figure 25 shows that Con Edison program participants were more likely than O&R participants to receive free CFLs at the conclusion of the energy survey. O&R installed free CFLs when non-free measures were installed, rather than at the conclusion of the energy survey. Interviews with sales auditors and turnkey contractors indicated that the free CFLs and faucet aerators are not effective in selling the program to customers. In fact one of the contractors said he found that offering the free measures upfront can make businesses skeptical of the program.

Figure 25. What Best Describes What Happened During Your Energy Survey



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

After concluding the energy surveys, Willdan sales auditors enter the energy survey data into the Excel based SBDI Savings Tool. The SBDI Savings Tool automatically generates a report that can be printed and presented to the business. Figure 26 provides an example of the Con Edison energy survey report.

The Con Edison energy survey report contains a summary of the costs and energy savings associated with the recommended equipment. While the report provides a concise overview of the proposed energy efficiency upgrades, it lacks sufficient sales auditor contact information for the business to follow up with questions. Often the form includes only the first name of the sales auditor. The form includes the 1-888-WILLDAN number, rather than a cell phone number or email address for the specific sales auditor. One non-participant who received an energy survey, but did not install any measures, mentioned that the results were not understandable and no explanation was provided. He was just "told to call a number."

When the evaluation team called the 1-888-WILLDAN number, an automated message first asks the caller to enter the extension of the person they wish to reach and offers a company directory. The message then says "If you are calling about the Con Edison Small Business Program, please press 2. For the O&R Small Business Energy Efficiency program, press 3." To reach a live program representative, we navigated through two more levels of the answering service (press 2, then 1). The energy survey report should be modified to include the contact information for the sales auditors, since this is the responsible staff for acquiring the signed work order and uploading the motion to proceed for installations.

The energy survey report includes an Energy Efficiency Project Planner sheet that provides more details on the associated measures for the proposed project. The Con Edison April 2011 version now includes a column for payback period. The O&R planning sheet always had the

payback period noted on it. The majority of SBDI program savings are related to linear fluorescent lighting retrofits. For this measure, the Energy Efficiency Project Planner includes the term "Efficient Lighting" to describe the linear fluorescent fixtures being proposed. More details should be provided to the eligible business about the measures being proposed, especially related to the fluorescent lighting measures.

The SBDI Savings Tool includes a worksheet for the work order, which includes product description, model numbers (e.g. Fluorescent, (2) 96" 55W T8 lamp ISB RLO (BF:.77)), recommended quantity and location in the business. The Willdan Contractor Procedures Manual (v3.1) states that if the customer wishes to install any of the recommended savings upgrades, the sales auditor will draft a work order form using the SBDI Savings Tool.

Figure 26. Example of Con Edison Energy Survey Results Provided to Eligible Businesses

Small Business Energy Efficiency

Free Energy Efficiency Survey For: [redacted]

Business Name:	[redacted]	**Your Surveyor:**	HAWES
Business Address:	[redacted]	**Contact Information:**	1-888-WILLDAN
City, State, Zip Code:	BROOKLYN, NY 11219	**How did you hear about the program?**	
Email and Phone:	[redacted]	Chain Account	
Business Data:	Food Stores	**Account Number:**	[redacted]

Thank you! We have tailored this report to show you exactly how your business may see real savings, month after month, while also helping the environment. The next steps are simple.

* **Select your energy saving upgrades**
* **Schedule a time for installation**
* **Install equipment**

Sign-up now to install your energy saving upgrade recommendations! Call us at: 1-888 WILLDAN (1- 888 945-5326).

The following chart is an overview of the types of upgrades, project costs, savings, and return on investment possible for your business.

Recommended Energy Saving Upgrade	Your Est. Annual Cost Savings*	Your Est. Annual Energy Savings (kWh)	Installation Cost	Incentive	Net Total Upgrade Cost	Simple Payback (Years)
Free Energy Saving Upgrades	$114.02	760.12	$13.54	$13.54	$0.00	0.000
Lighting Upgrades	$8,094.53	53,963.54	$8,484.66	$5,939.26	$2,545.40	0.314
Lighting Controls	$0.00	0.00	$0.00	$0.00	$0.00	0.000
Other Upgrades	$0.00	0.00	$0.00	$0.00	$0.00	0.000
TOTALS	**$8,208.55**	**54,723.66**	**$8,498.20**	**$5,952.80**	**$2,545.40**	**0.310**

* Cost savings are based on a $0.15 per kWh rate. Your rate could be higher or lower.

To help you plan your energy efficiency projects we have included a custom project planner for each upgrade you may want to consider for your businesss.

All work is completed by New York State licensed contractors who have been selected, approved, and trained by Willdan to participate in the program. This energy saving program is brought to you by Con Edison, and implemented by Willdan

WILLDAN Energy Solutions | conEdison the power of green

Energy Efficiency Project Planner

[redacted]

FREE Energy Saving Upgrade	Est. Annual Cost Savings	Est. Annual Energy Savings (kWh)	Installation Cost	Con Edison Incentive	Net Total Retrofit Cost
Compact Fluorescent Lamps	$114.02	760.1	$13.54	$13.54	$0.00
Low-flow Aerators	$0.00	0.0	$0.00	$0.00	$0.00
High-Pressure Rinse Sprayers	$0.00	0.0	$0.00	$0.00	$0.00
TOTALS	**$114.02**	**760.1**	**$13.54**	**$13.54**	**$0.00**

Energy Saving Lighting Upgrades	Est. Annual Cost Savings	Est. Annual Energy Savings (kWh)	Installation Cost	Con Edison Incentive	Net Total Retrofit Cost
LED Exit Signs	$0.00	0.0	$0.00	$0.00	$0.00
Efficient Lighting	$8,094.53	53,963.5	$8,484.66	$5,939.26	$2,545.40
LED Refrigeration Case Lights	$0.00	0.0	$0.00	$0.00	$0.00
TOTALS	**$8,094.53**	**53,963.5**	**$8,484.66**	**$5,939.26**	**$2,545.40**

Energy Saving Lighting Controls	Est. Annual Cost Savings	Est. Annual Energy Savings (kWh)	Installation Cost	Con Edison Incentive	Net Total Retrofit Cost
Occupancy Sensors	$0.00	0.0	$0.00	$0.00	$0.00
Bi-Level Control for Stairwell Lighting	$0.00	0.0	$0.00	$0.00	$0.00
TOTALS	**$0.00**	**0.0**	**$0.00**	**$0.00**	**$0.00**

Energy Saving HVAC Upgrades	Est. Annual Cost Savings	Est. Annual Energy Savings (kWh)	Installation Cost	Con Edison Incentive	Net Total Retrofit Cost
HVAC RCx (Tune-up)	$0.00	0.0	$0.00	$0.00	$0.00
Programmable Thermostat	$0.00	0.0	$0.00	$0.00	$0.00
Water Pipe Insulation	$0.00	0.0	$0.00	$0.00	$0.00
TOTALS	**$0.00**	**0.0**	**$0.00**	**$0.00**	**$0.00**

Energy Saving Refrigeration/Water Conservation Upgrades	Est. Annual Cost Savings	Est. Annual Energy Savings (kWh)	Installation Cost	Con Edison Incentive	Net Total Retrofit Cost
Vending Machine Controls	$0.00	0.0	$0.00	$0.00	$0.00
Anti-Condensation Door Heater Controllers	$0.00	0.0	$0.00	$0.00	$0.00
Evaporator Fan Controls	$0.00	0.0	$0.00	$0.00	$0.00
Low-flow Aerators	$0.00	0.0	$0.00	$0.00	$0.00
High-Pressure Rinse Sprayers	$0.00	0.0	$0.00	$0.00	$0.00
TOTALS	**$0.00**	**0.0**	**$0.00**	**$0.00**	**$0.00**

Figure 27 provides an example of the energy survey report for O&R. The O&R energy survey report contains a summary of the costs and energy savings associated with the recommended equipment. The O&R energy survey report (provided on February 7, 2012) includes a detailed customer work order describing the existing product and the proposed retrofit product specifications. The form includes the 1-877-786-0555 number, rather than a cell phone number or email address for the specific sales auditor.

When the evaluation team called the 1877-786-0555 number, the call goes directly to Willdan staff who answers the phone saying "Willdan, this is [NAME]." During after hours, the voicemail directs you to the website for more information. The energy survey report should be modified to also include the contact information for the contractor, in addition to the Willdan office number.

Figure 27. Example of O&R Energy Survey Results Provided to Eligible Businesses

Small Business Energy Efficiency

Free Small Business Energy Efficiency Survey For: [redacted]

Business Name:	[redacted]	**Your Surveyor:**	[redacted]
Business Address:	[redacted]	**Contact Information:**	877-786-0555
City, State, Zip Code:	NANUET, NY 10954	**Source:**	Street Sweep
Email and Phone:	[redacted]	**Date of Survey:**	12/13/2011
Business Data:	Warehouse (Not Refrigerated)	**Account Number:**	[redacted]

Thank you! We have tailored this report to show you exactly how your business may see real savings, month after month, while also helping the environment. The next steps are simple.

* **Select your energy saving upgrades**
* **Schedule a time for installation**
* **Install equipment**

Sign-up now to install your energy saving upgrade recommendations! Call us at: 877-786-0555.

The following chart is an overview of the types of upgrades, project costs, savings, and return on investment possible for your business.

Save money energy the environment

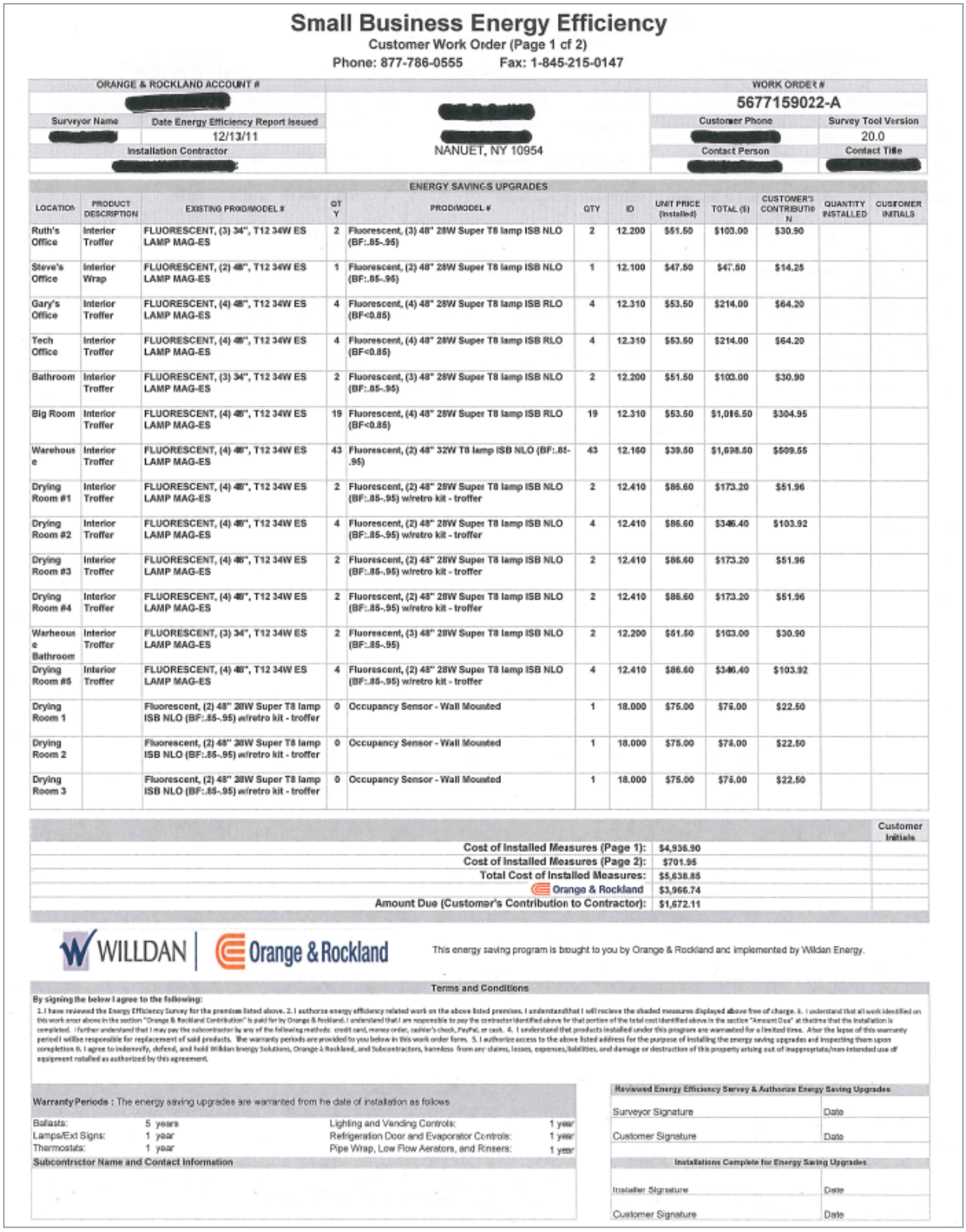
Recommended Energy Saving Upgrade	Your Est. Annual Cost Savings*	Your Est. Annual Energy Savings (kWh)	Total Installation Cost	O&R Pays	You Pay	Simple Payback (Months)
Free Energy Saving Upgrades	$106.35	604	$65.15	$65.15	$0.00	0.0
Lighting Upgrades	$2,400.86	13,641	$5,573.70	$3,901.59	$1,672.11	8.4
Refrigeration Upgrades	$0.00	0	$0.00	$0.00	$0.00	0.0
Other Upgrades	$0.00	0	$0.00	$0.00	$0.00	0.0
TOTALS	**$2,507.21**	**14,245.53**	**$5,638.85**	**$3,966.74**	**$1,672.11**	**8.0**

* Cost savings are based on a $0.176 per kWh rate. Your rate could be higher or lower.

To help you plan your energy efficiency projects , we have included a custom project planner for each upgrade you may want to consider for your businesss.

All work is completed by New York State licensed and insured contractors who have been selected, approved, and trained by Willdan Energy Solutions to participate in the program. This energy savings program is brought to you by Orange & Rockland and implemented by Willdan Energy Solutions.

WILLDAN | Orange & Rockland



Small Business Energy Efficiency

Customer Work Order (Page 1 of 2)

Phone: 877-786-0555 Fax: 1-845-215-0147

ORANGE & ROCKLAND ACCOUNT #			WORK ORDER #
[redacted]			5677159022-A
Surveyor Name	Date Energy Efficiency Report Issued	[redacted] NANUET, NY 10954	Customer Phone / Survey Tool Version
[redacted]	12/13/11		[redacted] / 20.0
Installation Contractor			Contact Person / Contact Title
[redacted]			[redacted] / [redacted]

ENERGY SAVINGS UPGRADES

LOCATION	PRODUCT DESCRIPTION	EXISTING PROD/MODEL #	QTY	PROD/MODEL #	QTY	ID	UNIT PRICE (Installed)	TOTAL ($)	CUSTOMER'S CONTRIBUTION	QUANTITY INSTALLED	CUSTOMER INITIALS
Ruth's Office	Interior Troffer	FLUORESCENT, (3) 34", T12 34W ES LAMP MAG-ES	2	Fluorescent, (3) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95)	2	12.200	$51.50	$103.00	$30.90		
Steve's Office	Interior Wrap	FLUORESCENT, (2) 48", T12 34W ES LAMP MAG-ES	1	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95)	1	12.100	$47.50	$47.50	$14.25		
Gary's Office	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	4	Fluorescent, (4) 48" 28W Super T8 lamp ISB RLO (BF<0.85)	4	12.310	$53.50	$214.00	$64.20		
Tech Office	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	4	Fluorescent, (4) 48" 28W Super T8 lamp ISB RLO (BF<0.85)	4	12.310	$53.50	$214.00	$64.20		
Bathroom	Interior Troffer	FLUORESCENT, (3) 34", T12 34W ES LAMP MAG-ES	2	Fluorescent, (3) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95)	2	12.200	$51.50	$103.00	$30.90		
Big Room	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	19	Fluorescent, (4) 48" 28W Super T8 lamp ISB RLO (BF<0.85)	19	12.310	$53.50	$1,016.50	$304.95		
Warehouse	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	43	Fluorescent, (2) 48" 32W T8 lamp ISB NLO (BF:.85-.95)	43	12.160	$39.50	$1,698.50	$509.55		
Drying Room #1	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	2	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	2	12.410	$86.60	$173.20	$51.96		
Drying Room #2	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	4	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	4	12.410	$86.60	$346.40	$103.92		
Drying Room #3	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	2	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	2	12.410	$86.60	$173.20	$51.96		
Drying Room #4	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	2	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	2	12.410	$86.60	$173.20	$51.96		
Warheouse Bathroom	Interior Troffer	FLUORESCENT, (3) 34", T12 34W ES LAMP MAG-ES	2	Fluorescent, (3) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95)	2	12.200	$51.50	$103.00	$30.90		
Drying Room #5	Interior Troffer	FLUORESCENT, (4) 48", T12 34W ES LAMP MAG-ES	4	Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	4	12.410	$86.60	$346.40	$103.92		
Drying Room 1		Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	0	Occupancy Sensor - Wall Mounted	1	18.000	$75.00	$75.00	$22.50		
Drying Room 2		Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	0	Occupancy Sensor - Wall Mounted	1	18.000	$75.00	$75.00	$22.50		
Drying Room 3		Fluorescent, (2) 48" 28W Super T8 lamp ISB NLO (BF:.85-.95) w/retro kit - troffer	0	Occupancy Sensor - Wall Mounted	1	18.000	$75.00	$75.00	$22.50		

		Customer Initials
Cost of Installed Measures (Page 1):	$4,936.90	
Cost of Installed Measures (Page 2):	$701.95	
Total Cost of Installed Measures:	$5,638.85	
Orange & Rockland	$3,966.74	
Amount Due (Customer's Contribution to Contractor):	$1,672.11	

WILLDAN | Orange & Rockland

This energy saving program is brought to you by Orange & Rockland and implemented by Willdan Energy.

Terms and Conditions

By signing the below I agree to the following:

1. I have reviewed the Energy Efficiency Survey for the premises listed above. 2. I authorize energy efficiency related work on the above listed premises. I understand that I will recieve the shaded measures displayed above free of charge. 3. I understand that all work identified on this work order above in the section "Orange & Rockland Contribution" is paid for by Orange & Rockland. I understand that I am responsible to pay the contractor identified above for that portion of the total cost identified above in the section "Amount Due" at the time that the installation is completed. I further understand that I may pay the subcontractor by any of the following methods: credit card, money order, cashier's check, PayPal, or cash. 4. I understand that products installed under this program are warranted for a limited time. After the lapse of this warranty period I will be responsible for replacement of said products. The warranty periods are provided to you below in this work order form. 5. I authorize access to the above listed address for the purpose of installing the energy saving upgrades and inspecting them upon completion 6. I agree to indemnify, defend, and hold Willdan Energy Solutions, Orange & Rockland, and Subcontractors, harmless from any claims, losses, expenses, liabilities, and damage or destruction of this property arising out of inappropriate/non-intended use of equipment installed as authorized by this agreement.

Warranty Periods : The energy saving upgrades are warranted from the date of installation as follows

Ballasts:	5 years	Lighting and Vending Controls:	1 year
Lamps/Ext Signs:	1 year	Refrigeration Door and Evaporator Controls:	1 year
Thermostats:	1 year	Pipe Wrap, Low Flow Aerators, and Rinsers:	1 year

Subcontractor Name and Contact Information

Reviewed Energy Efficiency Survey & Authorize Energy Saving Upgrades

Surveyor Signature	Date
Customer Signature	Date

Installations Complete for Energy Saving Upgrades

Installer Signature	Date
Customer Signature	Date

When asked to rate how easy it was to understand the recommendations included in the energy survey, most program participants and non-participants (85 percent of Con Edison and 95

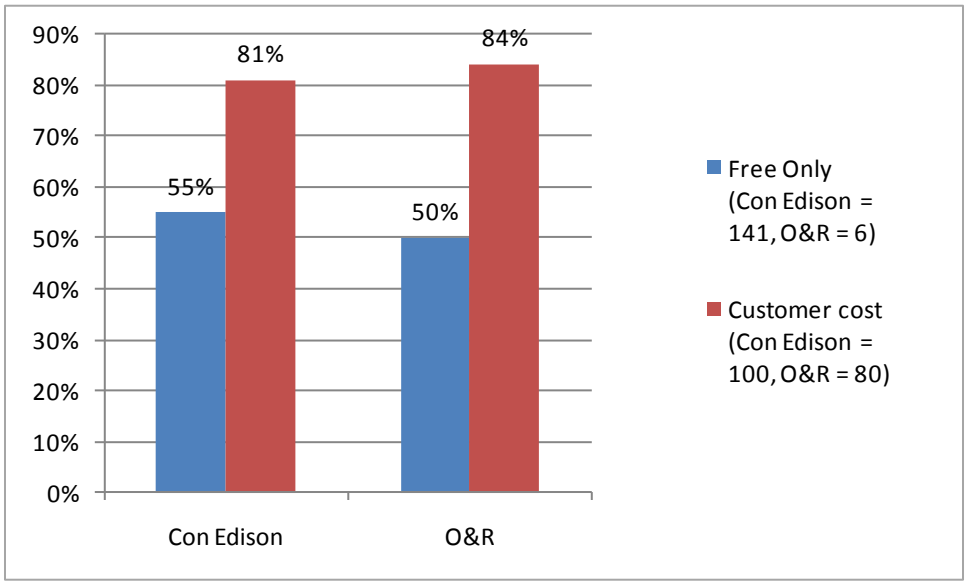
percent of O&R) responded with a score of seven or higher (with one being very difficult and 10 being very easy). Two of the non-participants who mentioned the recommendations were not easy to understand said the following:

- "Because there's no explanation, there's a chart with some heading and some totals and some columns."
- "Because it wasn't very clear was on the back of a piece of paper, and there was no explanation."

The Con Edison SBDI program should require that sales auditors always provide the work order as part of the energy survey results. This will better inform participants and may increase participation if customers better understand what they are getting. For example, one program participant mentioned that he did not understand what equipment was being recommended until they were done installing the measures. Chain account decision-makers generally felt that they received the necessary information (e.g., financial and equipment specifications) from the energy surveys to present the business case to management.

Not all program participants who installed measures recalled receiving the energy survey results (see Figure 28). Participants who installed reduced cost measures were more likely to recall receiving results in writing than those who received only free measures. About half of the participants who received only free measures, compared to more than 80 percent of those installing reduced cost measures who recalled receiving written energy survey results. It is possible that the participants who installed the reduced cost measures simply have greater recall, because they reviewed and signed written documents in order to participate.

Figure 28. Percent of Participants Who Recalled Receiving Written Energy Survey Results



The Willdan program manual states that "immediately after conducting a survey, the [sales auditor] enters their recommendations…to generate the energy efficiency report. The report

should be printed out on-site and a copy be given to the customer." The sales auditor is supposed to explain the results of the survey to the customer and describe the benefits of the energy savings upgrades, including available incentives.

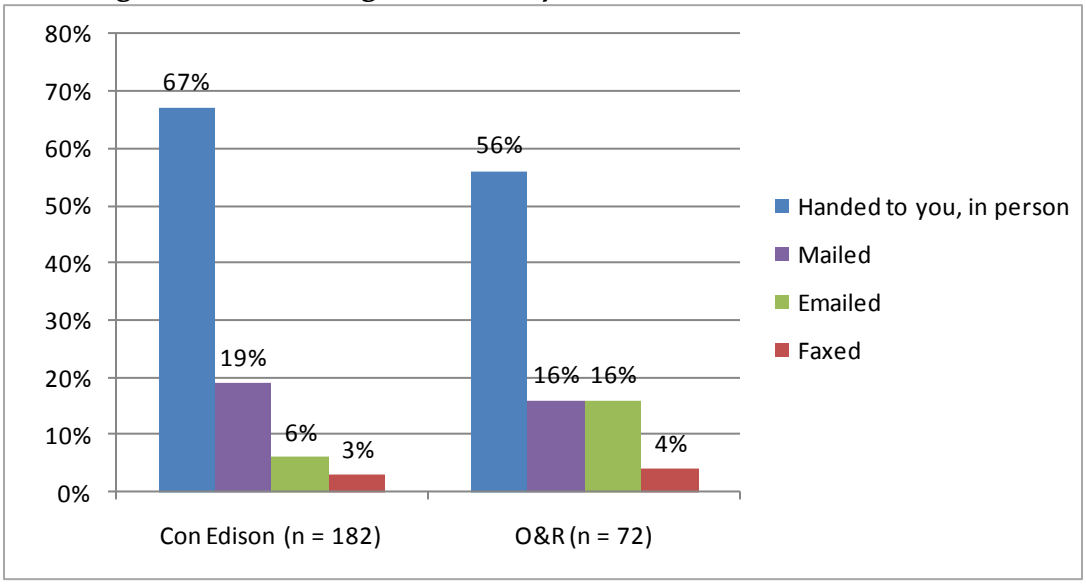
The program manual allows for situations where the sales auditor is unable to print out a report on-site and for the report to be printed off-site and delivered to the customer within 48 hours. Furthermore, it is stated that in-person delivery of the report is preferable, but fax or email delivery is acceptable. The program manual emphasizes that follow-up must be conducted within 10 days of delivery of the report.

The evaluation found that energy survey reports are seldom printed on-site and provided to the customer immediately after the energy survey. Not all sales auditors have portable printers to enable them to generate the reports on-site. Our field observations and in-depth interviews showed that sales auditors usually generate the reports at a later time. Not providing the energy survey results right away is a lost opportunity to sell the proposed project to the interested eligible business. Further, printing out the results immediately saves time, because the sales auditor does not have to return to provide the information in person. The face-to-face contact allows the sales auditor to answer any questions the customer may have and address their concerns about the project.

Figure 29 shows that most program participants received the written survey reports in person, although a significant number are mailed (or emailed in O&R territory). Whether the results are presented in person, or by email or mail, did not correlate consistently with whether the program participant installed free measures only. It appears that follow-up is more important than how the business receives the energy survey results. The phone surveys revealed non-participants who said they were interested in participating, but did not know how to contact the program. Lack of follow-up from Willdan is a key area of dissatisfaction with the program.[28]

[28] Con Edison staff indicates that there was a lack of follow-up because Willdan was being paid $250 per energy survey, with incentive to focus on installations. This was changed in Q4 of 2011 and will be continued with future SBDI vendors.

Figure 29. How Program Participants Received Written Results



While it is important for eligible businesses to receive their energy surveys in a timely manner, the quality of the survey report is also important. The sales auditor needs to include the proper project details and specifications to facilitate the hand-off to an installation contractor, should the eligible business agree to the project. Installation contractors interviewed by evaluation staff noted significant issues with the energy survey results they receive from Willdan sales auditors, including miscounts, missed opportunities and sub-par measure recommendations (i.e., equipment specifications).

Subsequent changes to the project details and cost estimates by installation contractors are frustrating to program participants and causes distrust. The SBDI program would benefit from a quality control procedure for sales auditor energy survey results to improve the project proposals and ensure a smooth hand-off to installation contractors.

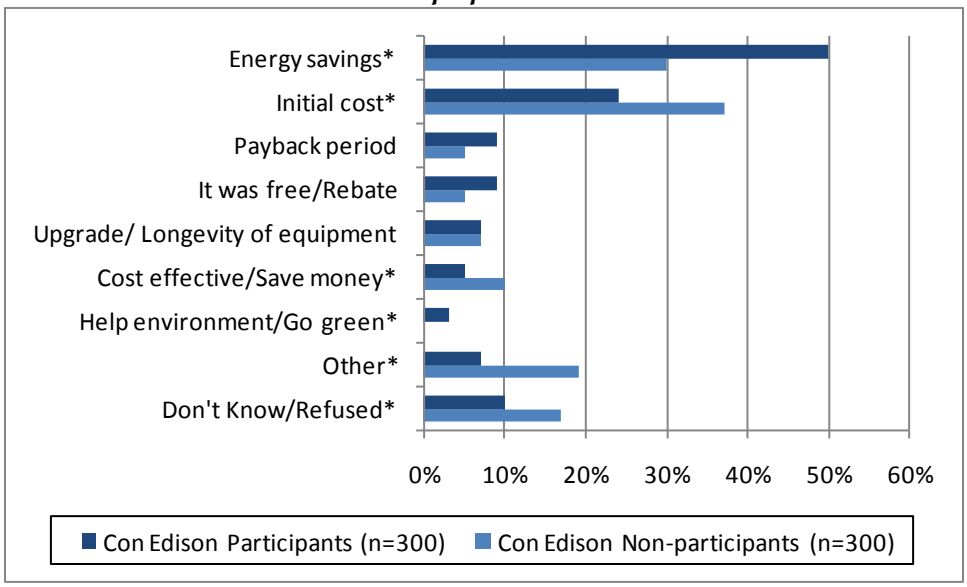
When asked to rate how easy it was to understand the recommendations included in the energy survey, most program participants (90% of both Con Edison and O&R) responded with a score of seven or higher (with one being very difficult and 10 being very easy). For program participants who responded with a low rating, the most common reason provided was that insufficient explanation was presented along with the survey results. One respondent complained they were just told to "call a number," presumably the 1-800 number on the summary sheet of the energy survey report. Another program participant who installed the free measures only, said he did not understand why the new reduced cost equipment would benefit his business.

3.5.5 Drivers and Barriers to the Installation of Measures

In this section, we examine what factors eligible businesses consider when deciding whether to install the recommended equipment, including reasons for non-participation.

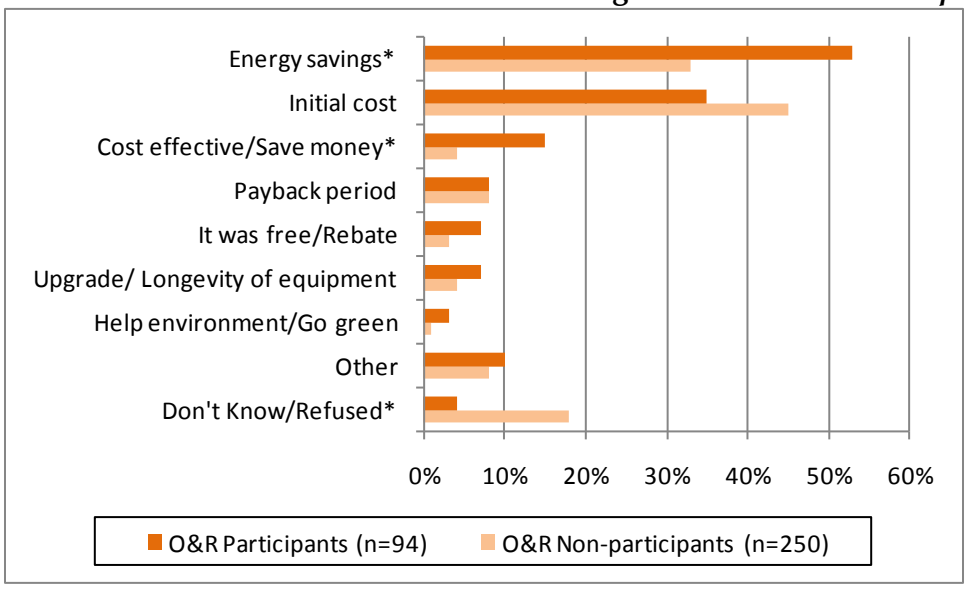
About half of the participants were motivated to install equipment due to the financial benefits associated with energy savings. Figure 30 and Figure 31 provide a summary of the most common factors considered by survey respondents in deciding whether to install the recommended equipment. For both utilities, non-participants were more likely to say that the initial cost was a factor in their decision, which may explain why they did not install reduced cost measures. Other reasons cited by survey respondents included considering whether or not the program was legitimate. Some respondents were also concerned about how the new lighting would look in their facility and what the brightness level would be.

Figure 30. Con Edison – Factors Considered When Making Decision to Install Equipment



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 31. O&R – Factors Considered When Making Decision to Install Equipment



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

The 10 chain accounts respondents were most concerned with the financial aspects of the recommended measures. They mentioned their need to understand how the costs and savings were being calculated. They also needed specific information about what equipment would be installed and what it would replace. Two chain account respondents said that the most influential information that led to their company's participation was the contribution from Con Edison on the capital cost, coupled with the energy savings going forward.

When choosing locations in which to install measures, chain account respondents also take into consideration recent upgrades and plans to close specific store locations. In some cases they mentioned that the new equipment would address maintenance issues with older ballasts and lamps. Therefore, those measures reduced both maintenance costs and energy costs.

For non-participants who stated they were not likely to install the recommended measures, the most frequently stated reasons were that the project would cost too much. Most non-participating customers said that there was no additional information that could have been provided in the energy survey results to help them to decide whether to install the recommended equipment.

For Con Edison non-participants who received an energy survey, 24 percent said more information was needed from the program to make a decision. The additional information mentioned was related to the following:

- More information about the contractor who would be conducting the installation
- More information about the type of light bulbs, and how they are appropriate for the business

For O&R non-participants who received an energy survey, only eight percent said more information was needed from the program to make a decision.

In the phone survey we asked non-participants who received an energy survey but did not install measures how likely they were to install the recommended measures in the next six months. We then asked their likelihood of installing the recommended measures if the project cost were reduced by half or if the utility helped them to obtain financing. Reducing the cost increased the likelihood for fluorescent fixtures, but assistance with financing did not.[29] Table 11 and Table 12 show the percent of non-participants who said they were likely to install the recommended measures (i.e., rated the likelihood a seven or higher, with one being not likely at all and 10 being extremely likely). Since there were few program non-participants for whom auditors recommended LED exit signs, reduced cost CFLs and occupancy sensors, there were very few survey respondents for these measures.

[29] The survey question asked non-participants about "the likelihood of installing [MEASURE] if the program helped you to obtain third-party financing to cover some, or all, of the upfront cost of the equipment." The question did not specify whether the financing would be 0% financing.

Table 11. Con Edison – Percent of Non-participants Likely to Install

Measure	(n)	Percent Likely to Install	Percent Likely if Half the Cost	Percent Likely if Financing Available[30]
Fluorescent light fixture	38	32%	46%	22%
LED Exit Signs	4	50%	50%	0%
Reduced cost CFL	5	18%	63%	45%
Occupancy sensors	3	67%	**	**

** No respondents

Table 12. O&R – Percent of Non-participants Likely to Install

Measure	(n)	Percent Likely to Install	Percent Likely if Half the Cost	Percent Likely if Financing Available
Fluorescent light fixture	13	38%	38%	27%
LED Exit Signs	5	26%	74%	26%
Reduced cost CFL	3	12%	56%	12%
Occupancy sensors	8	22%	**	**

** No respondents

3.5.6 Potential for Free-ridership

In this section, we examine the potential for free ridership, where a small business takes advantage of program incentives to pay for projects they were already planning to complete. Some customer acquisition approaches, such as leveraging existing contractor relationships with customers, may lead to higher rates of participation and free ridership. Measure selection is also an important component that can affect free ridership. If a program offers a popular type of equipment already being purchased by customers, then this can lead to a high rate of free ridership.

For the SBDI program, approximately 15 percent of Con Edison and O&R participants who received linear fluorescents said they had plans to install this already, with half of these customers saying they had already set aside budget. Similarly, approximately 15 percent of Con Edison and O&R participants who received CFLs said they had plans to install this already, but fewer than half (40 percent) had set aside budget. The customer responses are in line with freeridership expectations for a small business direct install program – that is, they appear low. The small business sector is typically a hard-to-reach segment that requires direct installation of measures to overcome barriers to energy efficiency upgrades. We did not identify significant free ridership issues at this time.

[30] The survey question asked non-participants about "the likelihood of installing [MEASURE] if the program helped you to obtain third-party financing to cover some, or all, of the upfront cost of the equipment." The question did not specify whether the financing would be 0% financing.

3.6 PROGRAM DELIVERY

This section examines the effectiveness of program delivery processes. We first explore participation flow and time lags between key program steps to increase participation. The section then focuses on the management of contractor activity to close the deal on project proposals and then complete installations. Finally, we assess the quality control procedures that are in place to ensure that installations and reported savings are real and verifiable.

3.6.1 Conversion of Leads to Completed Projects

Figure 32 below shows the flow of leads to completed energy surveys to completed installations of free or reduced cost measures. Leads represent the number of business locations identified as interested in having a free energy survey. Energy surveys completed represents businesses that completed an energy survey. Installations represent the number of businesses who installed free and/or reduced-cost measures through the program. The utility monthly scorecards do not indicate how many installations are free only, or include reduced cost measures. Based on the August 2010 SMART program database, however, approximately 30 percent of Con Edison installations included reduced cost measures, while 88 percent of O&R's installations included reduced cost measures.

Figure 32. Cumulative Conversions from Leads to Energy Surveys to Installations (Through June 2011)

	Con Edison	O&R
Number of leads	23,432	2,340
Number of energy surveys completed	22,185	1,879
Number of installation (e.g. projects)	10,042	787
Percent of energy surveys leading to installations (free or cost measures)	45%	42%

Source: Con Edison and O&R June 2011 Monthly Scorecards submitted to DPS.

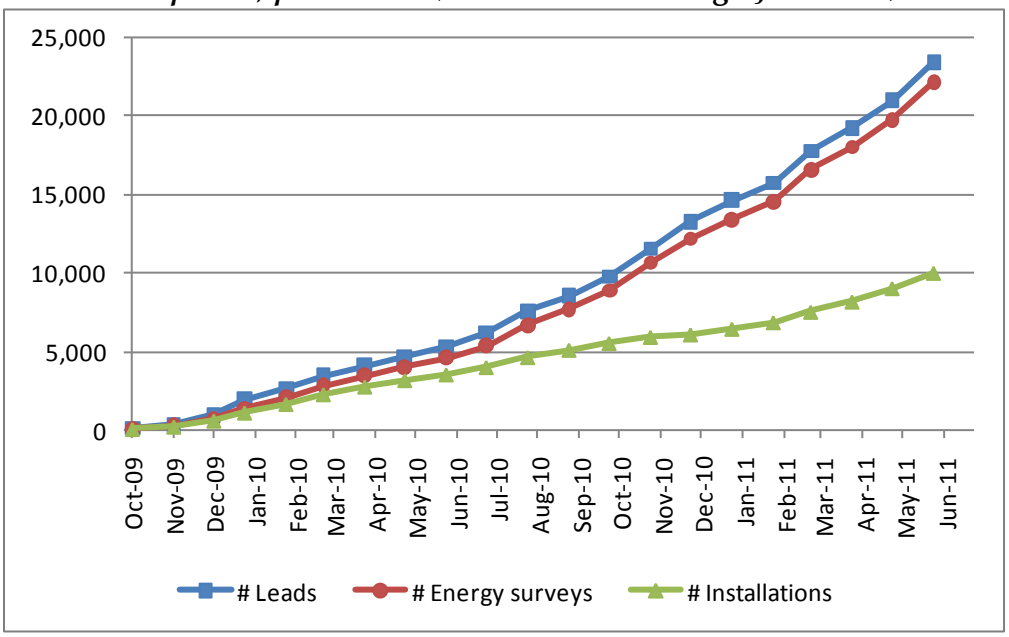
Figure 33 below shows that customer leads and completed energy surveys in Con Edison territory have steadily increased at similar rates since the SBDI program began. The rate of completed installations, however, is lagging behind the rate of increase in energy surveys completed. That is, a smaller proportion of surveys are resulting in measure installations.

The monthly scorecards do not include information on how many installations include free measures only or also include reduced cost measures. In order to promote reduced cost measures, Con Edison and O&R should ask Willdan (and Free Lighting) to provide information on the number of free-only versus reduced-cost installations separately.

Figure 34 shows that the cumulative number of Con Edison leads and energy surveys acquired have accelerated. Although the rate of completed installations has not increased at the same rate as leads and energy surveys, the savings per completed installation have increased since the

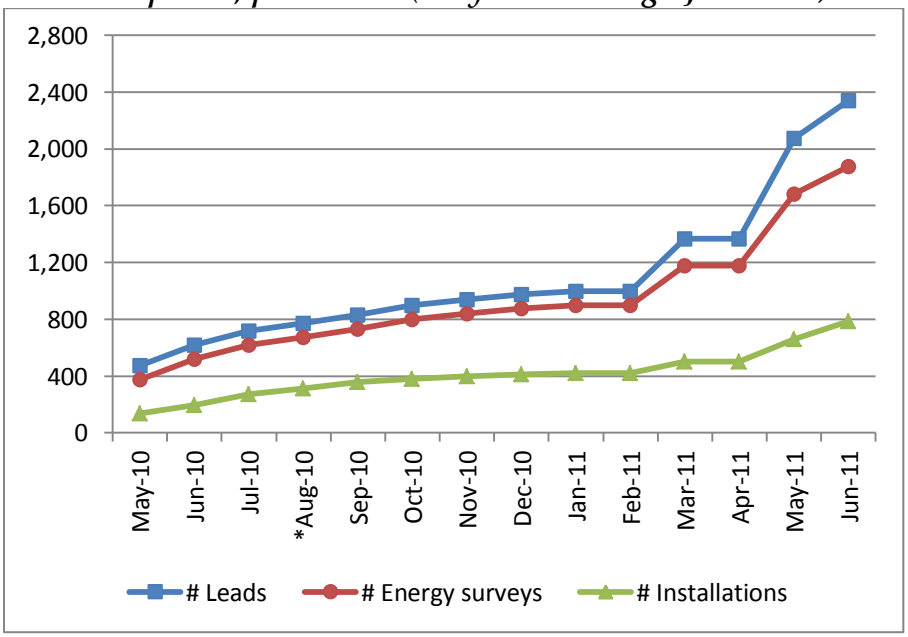
inception of the program.[31] O&R cumulative achievements have accelerated noticeably since the beginning of 2011, including the number of completed installations.

Figure 33. Con Edison – Cumulative Customer Leads, Energy Surveys and Installations Completed, per Month (October 2009 through June 2011)



Source: Con Edison June 2011 Monthly Scorecard submitted to DPS.

Figure 34. O&R– Cumulative Customer Leads, Energy Surveys and Installations Completed, per Month (May 2010 through June 2011)



Source: O&R Monthly Scorecards submitted to DPS through June 2011 (Note that August data were missing)

[31] As of January 2012, Con Edison staff indicates that the number of installations at end of 2011 increased substantially with a re-direction of Willdan's efforts from surveys to installs.

3.6.2 Volume of Customers Moving through Program Steps

In this section, we further examine the program steps and how many customers are moving through each step. We first assess the Willdan tracking database for volume of customers moving through each program step and then use phone survey results to understand how long each program step takes.

Con Edison has a large eligible population for the SBDI program, totaling more than 300,000 unique business facilities. O&R has an eligible population of close to 30,000. In order to increase program activity, the SBDI and Lighten Up programs must reach increasing number of eligible customers in each program step.

As shown in Figure 35, the Con Edison SBDI program had logged contacts with approximately 7 percent of the eligible population, as of August 2010. The contacts (e.g. street sweeps, letters, phone calls) led to energy surveys being completed with approximately 25 percent of those contacted. From here, program activity ramps up with the majority of eligible businesses agreeing to have measures installed. Of those with installed equipment, however, 70 percent had free measures installed only.

Figure 35. Con Edison - Number of Customers Moving through SBDI Program Steps through August 10, 2010

	Number of customers	Percent Moving through Each Step	Percent of Eligible Population
Eligible population	309,574		
Recorded customer contacts	20,596	7% eligible population	7%
Completed energy surveys	5,096	25% of contacted customers	2%
Signed work order	3,726	73% completed energy surveys	1%
Installed equipment	3,665	98% of signed work orders	1%

Source: Willdan SMART system database extract

In contrast, the O&R program has succeeded in reaching a larger proportion of its eligible population, mostly through direct mail to its top 5,000 energy using eligible businesses.[32] Given this large marketing blast that was recorded in the Willdan program database, a relatively small portion (10 percent) of O&R contacted customers had completed energy surveys.

[32] Subsequent direct mail targeted the largest 9,000 energy users, but this is not reflected in the data analyzed.

Figure 36. O&R - Number of Customers Moving through SBDI Program through August 10, 2010

	Number of customers	Percent Moving through Each Step	Percent of Eligible Population
Eligible population	27,131		
Recorded customer contacts	5,338	20% of eligible population	20%
Completed energy survey	548	10% of contacted customers	2%
Signed work order	274	50% of completed energy surveys	1%
Installed equipment	236	86% of signed work orders	1%

Source: Willdan SMART system database extract

Despite the differences in approach, both Con Edison and O&R have succeeded in installing equipment in the same percentage of eligible customers (1 percent). The participation percentage of overall eligible population look similar between Con Edison and O&R through each step of the program, with a slightly smaller proportion of completed energy surveys leading to signed work orders in O&R territory. However, a much higher percentage of O&R installations (88 percent) included reduced cost measures compared with Con Edison (30 percent).

As shown below in Table 13, average kWh savings per participant is higher for O&R compared with Con Edison. Furthermore, the average number of measures types (e.g., CFLs, occupancy sensors, LED exit signs, etc) installed is lower in the O&R service territory.

Table 13. Average Savings Acquired by Willdan through August 10, 2010

	Average kWh Savings per Participant	Average Number of Measure Types Installed
Con Edison	14,817	2.4
O&R	17,438	1.3

Source: Willdan SMART system database extract

Program Tracking Database, Length of Time between Program Steps

Table 14 and Table 15 presents an analysis of the number of days between the energy survey date and the install date, as listed in the Willdan SMART system through August 2010. Of all Con Edison projects installed to this date, about 70 percent were free only and 30 percent included reduced cost measures. Of all O&R projects installed to this date about 10 percent were free only and 90 percent included reduced-cost measures.

Table 14. Con Edison – Time from, Energy Survey to Installation through August 10, 2010

Days from survey until installation	Free measures only (N = 2,056)	Reduced cost measures (N = 913)
Average	1 day	25 days
Median	0 days	13 days
Minimum	0 days	0 days
Maximum	122 days	169 days

Source: Willdan SMART system database extract

Table 15. O&R – Time from Energy Survey to Installation through August 10, 2010

Days from survey until installation	Free measures only (N = 23)	Reduced cost measures (N = 199)
Average	15 days	50 days
Median	7 days	47 days
Minimum	0 days	0 days
Maximum	51 days	158 days

Source: Willdan SMART system database extract

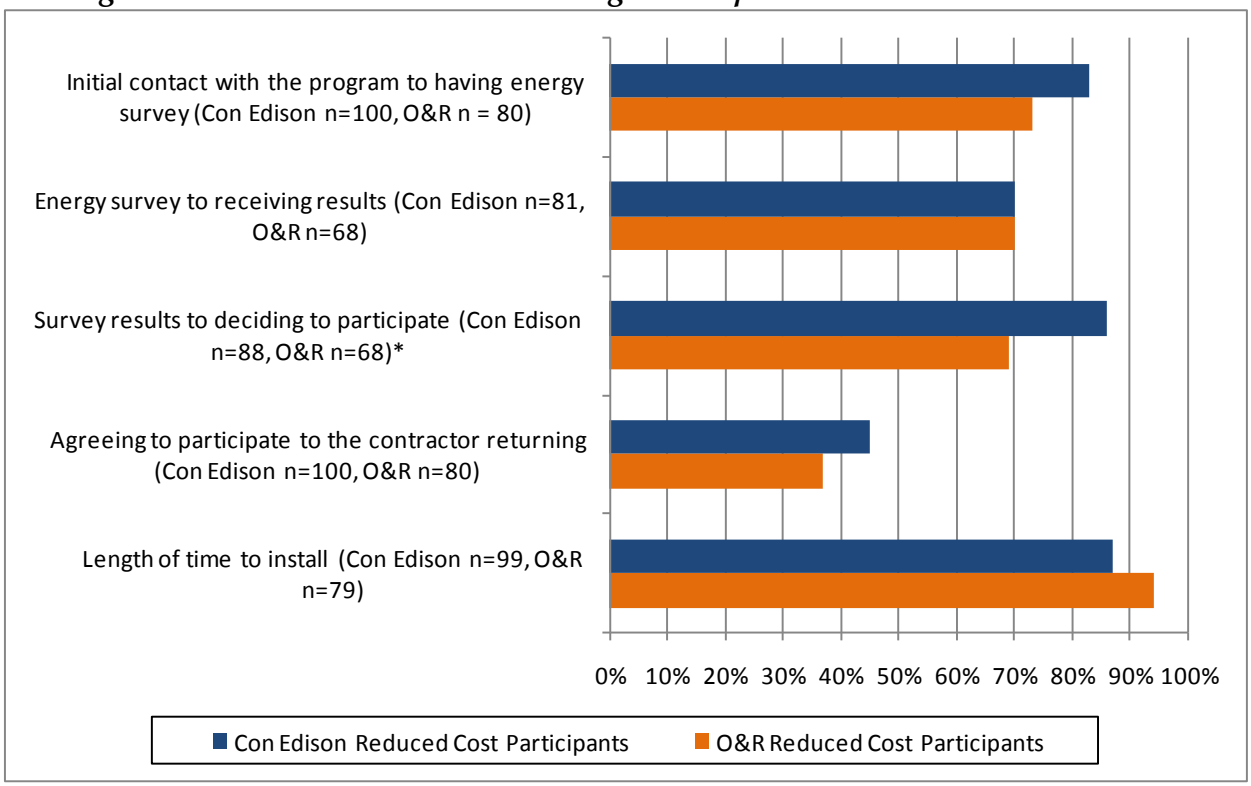
The date fields in the tracking database are not consistently filled out. There are fields to track dates related to customer contacts, energy survey, motion to proceed and install date. However, only energy survey date and install date are reliably and regularly filled in. Due to these inconsistencies, we were unable to come up with a reliable timeline other than from the date of the energy survey to the install date, based on the tracking data. The analysis shows that most Con Edison installations of reduced cost measures were occurring in half the time when compared to the O&R installations. As of August 2010, O&R was still ramping up the SBDI program.

Customer Self-reported Length of Time between Program Steps

Participation in the program involves multiple steps, from initial contact through installation of measures. Figure 35 shows the percent of Con Edison and O&R program participants (who installed reduced cost measures) that said that the program step occurred in less than two weeks. For many of the steps a substantial percentage of customers – 20 percent or more – wait more than two weeks for the program to complete the step. More than half of installation contractors take more than two weeks after the customer signs a work order to begin the job.

Once they start the job, more than 10 percent of Con Edison contractors, and 5 percent of O&R contractors have not yet completed the installation within two weeks.

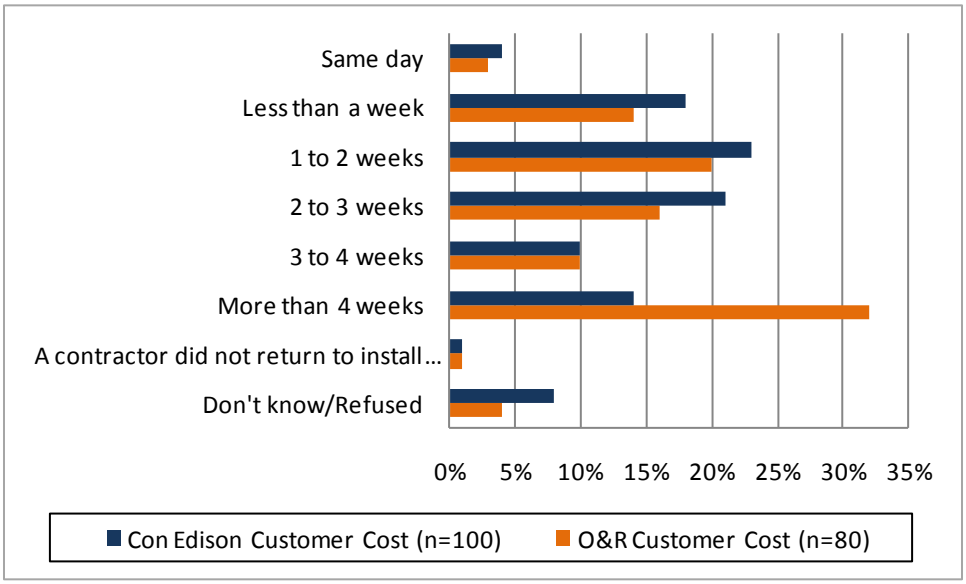
Figure 37. Con Edison and O&R – Program Step Occurred Within Two Weeks



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

To explore this issue further, Figure 38 shows the distribution of responses to the amount of time it took for a SBDI contractor to return to install the measures. Most Con Edison program participants reported that it took two to three weeks for a contractor to return to install the program equipment. Strikingly, in O&R territory, over 30 percent of survey respondents said it took more than four weeks for the project to begin. Once the contractor arrived on site, the vast majority of installations were completed within one day.

Figure 38. Con Edison and O&R – Length of Time for Contractor to Return to Install Reduced Cost Measures



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Chain accounts may take longer than single account participants to proceed through program steps. Some decision-makers at chain accounts wait for multiple energy surveys to be completed before deciding whether to participate. Some chain accounts aggregate the energy survey results to make a business case to management for final approval. Interviews with Willdan-provided customer contacts showed, however, that most of the chain accounts were satisfied with the length of time it took them to participate in the program.

For non-chain account businesses, the program needs to reduce the time between a signed work order and installation. This was identified as an issue not only in the customer surveys, but by program staff, sales auditors, and installers. Program stakeholders identified several reasons for the delays in equipment installation:

- The need to schedule around the business operating schedule
- Revisions to work orders to address issues with the original energy survey results
- Slow follow-up from the assigned installation contractor because the job is a low priority.

The program can accelerate program delivery by:

- Providing more complete training of sales auditors on how to accurately specify equipment recommendations.
- Providing financial incentives to installation contractors for fast (within two weeks) installation of all measures. (Incentives based on only start date of installation could result in projects that are started quickly, but take longer to complete.)
- Having contractors conduct energy surveys, instead of sales auditors.

3.6.3 Program Staff Roles and Responsibilities

In this section we examine the roles and responsibilities of program staff involved with each program step. Figure 39 provides a summary of staff responsible for the key program components. O&R is moving towards having turnkey subcontractors take more responsibility for the sales, energy surveys and installation pipeline for their assigned geographic areas. Con Edison has dedicated Willdan and Free Lighting sales staff responsible for the sales and energy surveys, with installation contractors (i.e. electrical contractors) focused on the installation itself. Willdan has some turnkey contractors in Con Edison territory also conducting the sales and energy surveys, but program activity from turnkey contractors has decreased. Since March 2011 Willdan has hired eight additional sales auditors, representing a 50 percent increase. Willdan is planning to hire another 10 to 15 sales auditors in August 2011. Based on past performance, installations based on sales auditors' surveys take longer to implement due to a higher error rate (see Section 3.6.2).

Figure 39. Overview of Contractor Staffing and Use of Subcontractors

<table>
<tr><th></th><th>O&R – Willdan</th><th>Con Edison – Willdan</th><th>Con Edison – Free Lighting</th></tr>
<tr><td>Street sweep</td><td rowspan="4">Turnkey subcontractor</td><td rowspan="3">Willdan sales auditors</td><td rowspan="3">Free Lighting sales auditors</td></tr>
<tr><td>Energy survey</td></tr>
<tr><td>Signed work order</td></tr>
<tr><td>Installed equipment</td><td>(Subcontractor) Electricians</td><td>Free Lighting electricians</td></tr>
</table>

In Con Edison territory, one key difference between the Willdan and Free Lighting approach is that Willdan is subcontracting the installation to electricians and installers, while Free Lighting serves as the installation contractor.

Turnkey contractors – those who complete both energy surveys and installations – completed 87 and 93 percent of the energy surveys for the Con Edison and O&R utilities, respectively (see Table 16 and Table 17).

Table 16. Con Edison – Energy Surveys by Implementer (through August 10, 2010)

Company	Number of Accounts Surveyed	Percent
FCI	2,027	36%
Lightwave Energy	1,120	20%
Energy Stars	816	14%
Willdan Energy Solutions	723	13%
Remaining Companies (23)	898	16%
No company identified	62	1%
Total	**5,646**	**100%**

Source: Willdan SMART system database extract

Table 17. O&R – Energy Surveys by Implementer (through August 10, 2010)

Distribution of Surveys among Companies	Number of Accounts Surveyed	Percent
Lime Energy	233	40%
EMS	183	31%
All Bright Electric	56	10%
Willdan Energy Solutions	43	7%
Green Light	41	7%
Remaining Companies (5)	31	5%
Total	**587**	**100%**

Source: Willdan SMART system database extract

In early 2011 Willdan adopted different staffing strategies in Con Edison and O&R territories. Willdan is now looking to increase its internal staff of sales auditors. In O&R territory previous issues with the quality of energy surveys conducted by Willdan sales auditors led to increasing the level of activity of turnkey contractors. Table 18 describes some of the relative benefits and downsides to each approach.

Table 18. Comparison of Benefits and Downsides of Different Staffing Approaches

	Sales auditor + Dedicated installers	Turnkey contractors
Benefits	• Strong sales skills • Ability to quickly complete more surveys	• Ability to accurately specify equipment parameters and price • More seamless management of sales pipeline to installation
Downsides	• Potential decrease in quality of energy survey results • Lack of follow-through with installer	• May not have strong sales skills to sell program measures • Can be time consuming for electrical contractors ("not worth it")

Recruitment of Subcontractors (Both Turnkey and Installation Contractors)

Willdan relies heavily on subcontractors in both the Con Edison and O&R service territories. Therefore, the recruitment of reliable subcontractors who can communicate with SBDI participants in a professional manner and complete quality installations is very important. Subcontractors are required to be licensed electrical contractors. Each of the five installers interviewed by the evaluation team believed that there is sufficient incentive – especially in terms of added revenue – for their participation in delivering the program. Anecdotally, revenue from SBDI ranges from a couple percent to close to 80 percent of revenue for participating contractors. In addition to an increase in revenue driven by the program, respondents noted the ability of the program to either develop or strengthen their relationship with clients.

As Con Edison moves towards increasing the proportion of Willdan sales auditors, the existing subcontractor activities will be more focused on installation activities only. This is more in line with subcontractor core competencies. Additional subcontractors have been added to the Con Edison SBDI program on a rolling basis.

In contrast, O&R moved to increase the number of turnkey contractors delivering the program in its service territory at the end of 2010. Willdan issued an RFP for turnkey contractors to be responsible for the seven different zip codes within the O&R service territory. To be successful, turnkey contractors must be willing pursue eligible businesses aggressively to make the sales in addition to completing the installations in a timely manner. O&R plans to expand the dedicated geographic territories for turnkey contractors who are bringing acquired energy savings to the program.

When the August 2010 interviews were conducted every installer mentioned issues getting reimbursed for the 70 percent covered by the SBDI.[33] This was the largest source of complaints among the installers, and was repeated throughout each interview. At that time some installers had not received any payment from Willdan. The installation contractors mentioned that they had few issues collecting money from customers, relative to the challenges associated with collecting the 70 percent from Willdan. Many attributed this to good customer relations with their clients.

Training for Sales auditors and Subcontractors

Both subcontractors and sales auditors received training on the Con Edison and O&R SBDI programs. Subcontractors report that most of their training is related to program procedures, including the energy survey tool, the SMART database system, invoicing and other administrative components. Sales auditors also report being trained on the energy survey tool, protocols and expectations, and "some information about lighting."

Two of the sales auditors interviewed said they were only provided a brief overview of the technologies in the SBDI program, since they had previously worked for other energy efficiency direct install programs in a similar capacity. For the sales auditors with less experience in the energy efficiency industry, their training included shadowing other sales auditors in the field. The time spent shadowing ranged from three days to three weeks. Most of the sales auditors interviewed said that the technical questions from eligible businesses are the hardest for them to answer, but that they have the ability to contact the Willdan office to provide the correct response to the customer.

In the Con Edison territory, Willdan should be sure to closely monitor the quality of energy survey reports from Willdan sales auditors. Three out of the five installation contractors interviewed identified significant issues with the audits they receive from Willdan. The issues include:

- Missed opportunities;
- Inaccurate counts of lighting fixtures; and
- Sub-par measure recommendations or specifications (e.g., wrong retrofit wattage or type of new lighting recommended).

These installers said that they have to redo, modify, or send back the original energy survey after visiting the business to conduct the installation. Two of them recommend that Willdan provide better training related to the lighting technologies to their surveyors. The training should focus on appropriate lighting recommendations for eligible businesses, including ensuring adequate lighting levels (i.e., lumens), applicability to dimmer switches, and addressing specific business concerns (e.g., aesthetics of the new lighting). The training should

[33] The invoicing issues have since been resolved.

also review the information needed by installation contractors to prepare to arrive at the job site, such as height of ceilings and other obstructions to accessing the baseline equipment.

In late 2010 Willdan instituted procedures in Con Edison territory to inspect 10 percent of all energy surveys to "verify the accuracy of the report and correct use of the survey tool, to insure a correct capture of existing fixtures along with correctly proposing measures commensurate with the program, and to insure that all potential energy savings are captured."[34] Willdan should use the results of the inspections to identify specific issues and topic areas where more training is needed for sales auditors.

In the first year of the program, the O&R SBDI program was using Willdan sales auditors to conduct energy surveys. Installation contractors had to frequently make changes to energy survey reports and work orders. To address this issue, O&R has since moved to a turnkey subcontractor approach where the same firm conducts the energy survey and the installation of program measures. Therefore, turnkey contractors are now responsible for ensuring quality energy survey reports.

Payments for Sales auditors and Subcontractors

The evaluation has identified that to increase program activity, the average project size must increase and the installations rate must accelerate. In this section we examine the effectiveness of existing payment structures to support these priorities.

Willdan is reimbursed per the number of energy surveys completed, and per measure installed. Free Lighting is reimbursed per piece of equipment. Table 19 summarizes how the payments and bonuses flow to sales auditors and subcontractors. In general, sales auditors get bonus payments for completing energy surveys and getting equipment installed. There are no bonus payments for completing work within a given amount of time.

[34] Contractor Procedures Manual. Con Edison SBDI Program v3.1 (page 50)

Table 19. Overview of Reimbursement and Bonus Payments to Implementation Staff

	Willdan (O&R)	Willdan (Con Edison)	Free Lighting (Con Edison)
Overall	Paid per number of energy surveys completed. Paid per specific measures installed. Paid time-and-materials.		Paid by Con Edison per specific measures installed
Sales auditors	No bonus payment, since energy surveys performed by lighting contractors	Bonus payment for number of audits, and for acquiring over 250,000 kWh over two weeks (signed work orders)	Paid on commission based on number of measures installed
Installers	Paid per specific measures installed	Paid per specific measures installed, as well as an adjustment for fixtures over 12 feet.	Paid per specific measures installed

Willdan sales auditors in Con Edison territory earn wages as Willdan employees, but are also given bonus payments for the number of completed energy surveys and the kWh savings sold (i.e. related to signed work orders).[35] These bonus payments are based on performance over a two-week period and are paid regardless of whether (or when) the work orders become installed.

Free Lighting sales auditors are paid strictly on commission, based on the amount of equipment (e.g. number of widgets) that is ultimately installed. These salespeople do not get paid until the equipment is fully installed at the customer site.

Across both Con Edison and O&R service territories, all installation contractors are paid per piece of equipment installed. Free Lighting electricians are also paid on an hourly basis, in addition to a reimbursement based on piece of equipment.

For Con Edison, because Willdan sales auditors receive a bonus payment for acquiring more than 250,000 kWh every two weeks, and Free Lighting sales auditors are paid strictly on commission, there are incentives in place for increasing the savings per project. Increasing program activity will also require installations to be completed more quickly. There are currently no bonus payments to support this need. Furthermore, Willdan sales auditors have no incentive to improve the quality of the energy survey reports and signed work orders to ensure smooth transition to the subcontractor responsible for the installation. Poor quality work orders lead to delays as installers arrive at the job site and cannot complete the installation as planned.

[35] As of July 2011, Con Edison staff reported sales auditors no longer receive a kWh incentive.

3.6.4 Quality Control Procedures

To ensure that high quality program savings estimates are reported to the DPS, there have been two types of quality control procedures. The first comprises of installation inspections by Willdan and Free Lighting internal staff responsible for overseeing contractor work. The second type is a verification of installations conducted by a third party, such as Nexant, ICF Consulting, and/or utility staff. We gathered information on these efforts from interviews, program documentation and a small sample of ride along visits. As such, this section largely provides qualitative results although we had sufficient information for an understanding of the effort and how it might be improved.[36]

Inspections Conducted by Implementation Contractor Staff

In Con Edison service territory, both Willdan and Free Lighting have internal staff dedicated to conducting inspections of installed projects. According to their contracts with Con Edison, both Willdan and Free Lighting are required to inspect and verify at a minimum 10 percent of installation work performed at program participant sites. O&R also requires Willdan to inspect and verify at a minimum 10 percent of installation work performed. The purpose of these inspections is to ensure that SBDI program guidelines and requirements are met.

The most recent Willdan Contractor Procedures Manual (version 3.1) outlines a process for assigning a rating to contractors based on the results of Willdan inspection of their work. The three rating categories are Good Standing, Under Evaluation and Probationary. Within the 10 percent of projects to be inspected, Willdan selects projects at random across the three rating categories using a ratio of 1 (Good Standing) to 2 (Under Evaluation) to 3 (Probationary). All new subcontractors are automatically placed in the Under Evaluation category for the first 60 days to allow Willdan to observe their work.

According to an interview with the Free Lighting SBDI program manager, 100 percent of project sites are inspected. All installed project files are inspected for proper internal documentation (e.g. copy of the contract, copy of what was installed, photos and warranty information). Each installed project is visited by a Free Lighting inspector who must visit the site to ensure proper installation and acquire a final customer signature. There is no documentation of the Free Lighting quality control procedure,

In O&R service territory, Willdan program staff meets twice a week to review program participant complaints and identify which sites will be inspected. Projects that are suspected to be problematic by the program staff are more likely to be selected for inspection. O&R requires Willdan to inspect at least 10 percent of completed projects and 100 percent of projects with complaints.[37]

In summary both Willdan and Free Lighting have program processes to inspect project sites to ensure that equipment is installed and operating as recorded in the program database. The inspections also allow program participants to provide feedback directly to Willdan and Free

[36] Quantitative data from QA work can be provided by Con Edison directly based on internal review. Data associated with Nexant research is unavailable as they were not contracted by Con Edison, but by Willdan.
[37] O&R staff indicates that Willdan is now randomly inspecting 20% of completed projects since November 2011.

Lighting about their satisfaction with the work performed by the installers. Therefore, these internal inspections are a critical component to ensuring participant satisfaction and acquisition of real energy savings.

The Willdan inspection approach in Con Edison territory provides clear guidelines used in determining the ranking of subcontractors (e.g., Good Standing means work order matches the installed counts and all debris removed from the work site and the small business is satisfied with the contractor work). The inspection process in O&R would benefit from incorporating more transparency to the method for selecting sites and rating subcontractors as Good Standing, Under Evaluation or Probationary to encourage a consistent level of work quality. As the O&R SBDI program is relying more on a few turnkey contractors, this rating may be applied to individual installers employed by each turnkey contractor.

Based on the evaluation team experience with other direct install programs, however, a 10 percent inspection of projects is not adequate for ensuring consistent quality installations. In the early years of a new program, installation contractors are still feeling out program requirements and Willdan has the responsibility to oversee a large number of subcontractors. Typically, inspection rates should be much higher than 10 percent with new subcontractors. Lower rates of inspection may be used with subcontractors with good track records. Additional program funds would be needed, however, to support any significant increase in the percent of project sites inspected.[38]

Verification Conducted by Third-party

In addition to inspections conducted by implementation contractor staff, both Con Edison and O&R have third-party staff conducting inspections of completed projects. Con Edison initially required Willdan to subcontract directly with a third party to implement a Quality Assurance Program for verification of installations. To meet this requirement, Willdan contracted with Nexant to assess projects in both Con Edison and O&R service territories. In late 2010, the Nexant contract was cancelled in Con Edison territory, so that the utility could assume greater control and oversight of the third-party verification activities. Nexant continues to conduct verifications in the O&R service territory.

According to the Nexant "Quality Assurance and Project Verification Procedures for the Con Edison Small Business Direct Install Program" document (QA/QC Procedures), Nexant utilized a tiered sampling strategy based on the reported energy and demand savings. Projects with larger savings (e.g. greater than 100,000 kWh) were sampled at a higher rate than projects with smaller savings (e.g. less than 20,000 kWh).

During the field observation of the Nexant QA/QC inspections, the evaluation staff observed that the inspector had downloaded the applicable files from the SMART system to prepare for the site visits. A total of six project sites were visited in one day. Only four QA/QC inspections were completed, because two sites refused to allow access to the facility.

[38] It may be possible to utilize evaluation funds for this purpose.

At one site, when he was unsuccessful in gaining permission to conduct the physical measure verification, the QA/QC inspector left the site and wrote the reason for site visit failure in his notes. For sites where the contact listed in the project records was present at the business and available to speak with the inspector, the inspector explained why the business had been selected for verification and what the inspection would consist of.

Upon gaining permission to conduct the inspections, the inspector attempted to physically verify that all equipment listed in the project records was installed and operating. During the day of the field observations, each of the sites selected only installed lighting measures. Therefore, KEMA is only able to determine what QA/QC steps are taken for lighting-only projects.

Figure 40 presents KEMA's assessment of the lighting QA/QC activities observed in the field based on the protocols presented in the QA/QC Procedures document. For the most part, the Nexant inspector followed the procedures outlined in the QA/QC Procedures document.

Figure 40: Assessment of Completion of QA/QC Procedures

QA/QC Inspection Step		Field Observations
1) Verifying quantity, type, hours and control method for baseline fixtures		The inspector discussed baseline conditions with the site contact in order to determine baseline conditions. Quantity, type, and hours were collected, although control method was not collected.
2) Verifying quantity, type, hours and control method for retrofit fixtures		The inspector attempted to verify quantity, type and hours for retrofit measures, although control method was not collected.
	a) Recording CFL wattage from CFL base	CFL wattage was collected when possible (unable to collect for broken and removed CFLs)
	b) Recording fluorescent tube model number	No fluorescent tube inspections conducted. However, for a metal halide installation, it was impossible to collect model number due to the ceiling height and lack of access. This may be the case for some fluorescent tube installations.
	c) Recording ballast type if accessible	*No basis for assessment*
	d) Testing for electronic ballast with ballast tester	*No basis for assessment*
3) Inquiring if any changes in operation have been made since project inception		The inspector inquired about store operation hours only.
	a) Store operation hours	Store operation hours were collected
	b) Seasonal changes	Not collected
	c) Store layout	Not collected
4) If lights are found to be missing, inquiring		Yes – for sites in which the inspector could not locate lights, the discrepancy was discussed with the site contact. Lamps had either broken or been installed at another location.
	a) when	Yes
	b) why	Yes
	c) how	Yes
5) Determining if burned out CFLs were replaced with baseline incandescent bulbs		Yes, the inspector determined if they were replaced with baseline incandescent bulbs.
6) Determining if functioning CFLs were removed for any other reason (low light levels, installed off-site, etc)		Yes, the inspector determined that CFLs at one site were removed to be installed off-site.

Figure 41 summarizes the findings from the day of ride-alongs with the Nexant inspector in Con Edison territory. For the two sites where the measures could not be found, both involved compact fluorescent light bulbs. For one site, the bulbs had been moved to an alternate location. The Nexant inspector did not ask to where and why the light bulbs had been moved. At the second site the program had left 40 CFLs at the business for use in drop lights. All of the bulbs had broken because they were too fragile for this application. It is unknown whether the sales

auditor was aware that the CFLs would be used in drop lights, but the SBDI program requires that the measures be installed and not simply left behind.

Figure 41: Con Edison – Site Specific Field Observation of QA/QC Verifications

	Site 1	Site 2	Site 3	Site 4
Measure types installed	CFL	CFL	T8 fixtures	PAR CFLs
Verification result	All but two light bulbs found	None found	All found as listed	All found as listed
Reason for discrepancy, if any	Customer confirmed that two bulbs moved to alternate business location	Customer reports that box of 40 CFLs left at business location, and all had broken due to nature of use in droplights.	N/A	N/A

Each month, Nexant provided a summary of the verification findings, including an interim realization rate. Nexant calculated a realization rate by dividing the Nexant verified gross savings by the savings recorded in the SMART system. The verified gross savings includes revised measure quantities, baseline equipment, retrofit equipment and operating hours, based on the site visit.

The September 2010 monthly report[39] compared the verification results associated with projects installed during March and April 2010 with projects installed between August 2009 and February 2010. The memo found that compact fluorescent light bulbs (CFLs) were more likely to be burned out or removed, compared with non-free measures such as linear fluorescent light bulbs.

After the Nexant contract with Willdan was cancelled in Con Edison territory, Con Edison dedicated its own staff and subcontractor to verifications of the SBDI program. Con Edison targets the verification to projects which have high estimated kWh savings relative, to electricity usage. In addition to site visits, Con Edison staff conducted an analysis of specific subcontractors and the frequency of overstated savings in the SBDI program database. Over time, Con Edison has been finding fewer incidences of overstated energy savings. The Con Edison verification activities provide a valuable layer of oversight to monitor the quality of projects installed by both Willdan and Free Lighting.

[39] SBDI-Evaluation_InterimMemo #2.pdf. (Memo dated September 2010. From V. Narkaj and S. Gogte to L.Kass and G.Sumner)

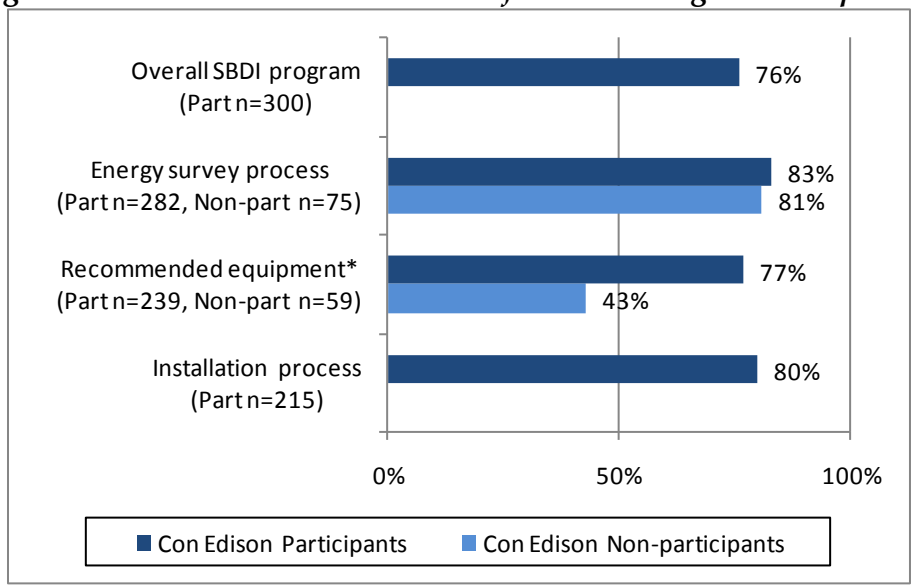
In O&R territory, the Nexant verifications target projects randomly. A monthly report is provided to Willdan summarizing any issues found with specific sites, which allows Willdan an opportunity to work with the contractor to rectify the situation. The Nexant quality control activities complement Willdan internal inspections in O&R territory by verifying the accuracy of program reported savings.

3.7 SATISFACTION WITH THE PROGRAM

In this section, we examine customer satisfaction with their interactions with the SBDI program. Through the phone survey, program participants were asked about their satisfaction with the program overall and with key program components. Non-participating customers were not asked their satisfaction with the program overall, but were asked to rate their satisfaction with specific program steps, namely the energy survey process and the types of equipment recommended by the program.

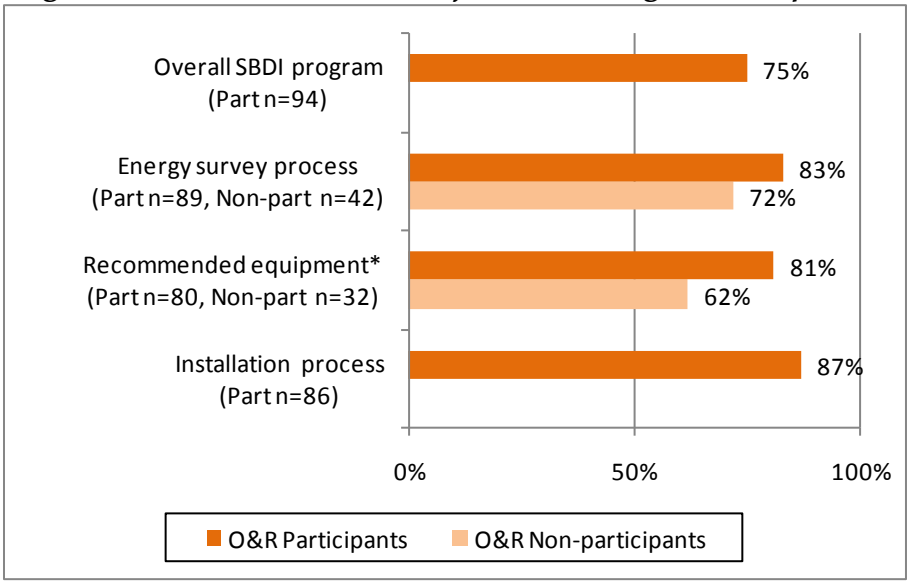
Figure 42 and Figure 43 show the percent of program participants and non-participants who were satisfied with the program and its components, i.e., responded with a score of seven or higher (with one being not at all satisfied and 10 being extremely satisfied). While non-participants generally were similarly satisfied with the energy survey process, non-participants were notably less satisfied with the types of equipment recommended.

Figure 42. Con Edison – Percent Satisfied with Program Component



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 43. O&R – Percent Satisfied with Program Component



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Overall, most program participants were satisfied, rating the program at least a seven out of 10 (with one being not at all satisfied and 10 being extremely satisfied). Participants who rated their satisfaction less than a seven, were asked "Why do you say that?"The most common reason provided for dissatisfaction is that the project was not completed. The second most frequently provided reason was that the participant did not notice any savings on their energy bill. A few said that the equipment did not work properly.

Below, we examine in further detail satisfaction with specific program components. The reasons for satisfaction and dissatisfaction are similar across Con Edison and O&R, so the responses are combined.

3.7.1 Participant and Non-Participant Feedback on the Energy Survey Process

Most program participants and non-participants were satisfied with the energy survey process. The overwhelming reason for dissatisfaction with the energy survey process is that the project remained unfinished. Many non-participants indicated that the sales auditor said they would come back and never did. The second most common reason was that the program did not look at other energy using equipment. Measures for other energy using equipment may not be cost-effective under the direct install program. The SBDI program should refer these customers to other applicable rebate programs. Table 20 provides specific examples from customer responses.

Table 20. Summary of Reasons Why Customers Were Not Satisfied

Reason	Specific Examples
Project unfinished/Nothing done	• "I was promised light bulbs, but never got them." • "Nothing was completed. They started but never finished." • "The project is not finished. Weeks and months signed off on the job, but not finished. Called two times. I wanted sensors which are not done. More efficient lighting were not completed either." • "I gave them a deposit, and they never came back. It's been eight months and $500 deposit."
Didn't look at other energy using equipment	• "They only looked at lights, and there is a whole lot that we can do to save energy that they didn't mention. Lighting is the least of my concerns."

Most of the incomplete projects are related to participants who were promised free light bulbs, and never received them. The program should de-emphasize the availability of free light bulbs as it is not worth implementation staff time to return merely to provide free light bulbs. Furthermore, few businesses were motivated to install the higher savings projects (e.g. linear fluorescent lighting) by the availability of free compact fluorescent light bulbs.

3.7.2 Participant and Non-Participant Feedback on the Types of Equipment Recommended

While most participants were satisfied with the types of equipment recommended, non-participants were significantly less likely to be satisfied. The most common reason was that the equipment recommended was not right for their business. One chain account respondent mentioned that they wished the program offered a larger variety of energy efficient lighting fixtures. This chain account had particular preferences for the look of their store.

For participants, the most common reason for dissatisfaction with the types of equipment recommended is that the equipment did not work, or was broken. There were many complaints that the compact fluorescent light bulbs burned out shortly after being installed. There was also dissatisfaction with the lighting quality, with respondents reporting that it was not right for their business or that the light bulbs did not work with dimmer switches. Table 21 provides examples of specific responses.

Table 21. Summary of Reasons Why Customers Were Not Satisfied

Reason	Specific Examples
Equipment is not right for my business	• "The equipment didn't make sense to change. It was very minimal." • "I have spot lights that are old and they didn't offer to replace those. Compact fluorescent bulbs, in this shop, it is not sufficient light." • "[The program] offered reflectors that are an eye sore." • "Equipment didn't fit into existing light sockets."
Poor quality CFLs/Broken	• "The bulbs were cheap and I was not satisfied. Usually they last a long time. They only lasted 2-3 weeks." • "Some of the lightbulbs burned out too quickly for fluorescent."
Poor light quality	• I had a bulb that worked. The compact fluorescents, they do not provide the right light. • The one fluorescent bulb that they changed was so dim, we had to remove it and replace with a regular bulb. • Not enough light would be projected into the space with the new equipment.
Doesn't work with dimmers	• They do not work with the dimmers. • The only thing [the program provided] was change the switches and give me bulbs that didn't work. In fact, the switches work like yo-yo's and I'm going to have them changed back. • Flood lights are supposed to dim, but do not work properly.

In addition to satisfaction with the types of equipment recommended, program participants were asked to rate their satisfaction with the measures installed at their business. As shown below in Table 22 and Table 23, most participants were satisfied with the program sponsored equipment. Respondents noted dissatisfaction with the pipe insulation, but did not provide specifics.

Table 22. Con Edison – Satisfaction with Measures Installed

Measure	(n)	Percent Satisfied
Free CFL	248	79%
Fluorescent light fixture	105	90%
LED Exit Signs	19	78%
Reduced cost CFL	12	80%
Occupancy sensors	14	70%
Hot water pipe insulation	1	0%

Table 23. O&R – Satisfaction with Measures Installed

Measure	(n)	Percent Satisfied
Free CFL	73	73%
Fluorescent light fixture	80	84%
LED Exit Signs	26	86%
Reduced cost CFL	10	63%
Occupancy sensors	30	61%
Hot water pipe insulation	2	0%
Reduced cost faucet aerators	2	100%

The survey respondents mentioned that the CFLs did not work with a dimmer. Some participants who received occupancy sensor mentioned that the setting was not properly adjusted to their working conditions. In these cases, the lights would turn off while staff was still in the room, causing unsafe conditions. Occupancy sensors require contractors to spend some time adjusting the settings to suit the specific business application. At a minimum installation contractors need to customize the sensitivity of the sensor and duration that the light remains on. The SBDI program quality control procedures need to identify instances when this is not happening and require the subcontractor(s) to rectify.

Figure 44 and Figure 45 summarize the benefits that participants mention about their new equipment, when asked "what benefits, if any, have you noticed about this equipment?" For participants who received linear fluorescent lighting, more than 40 percent mentioned better quality and longer lasting lighting. Participants who received reduced cost CFLs also mentioned that they were saving money on their utility bill. When asked if they have noticed any drawbacks related to the program measures installed, most participants said they had not noticed any drawbacks.

Figure 44. Con Edison – Benefits Noticed About New Equipment

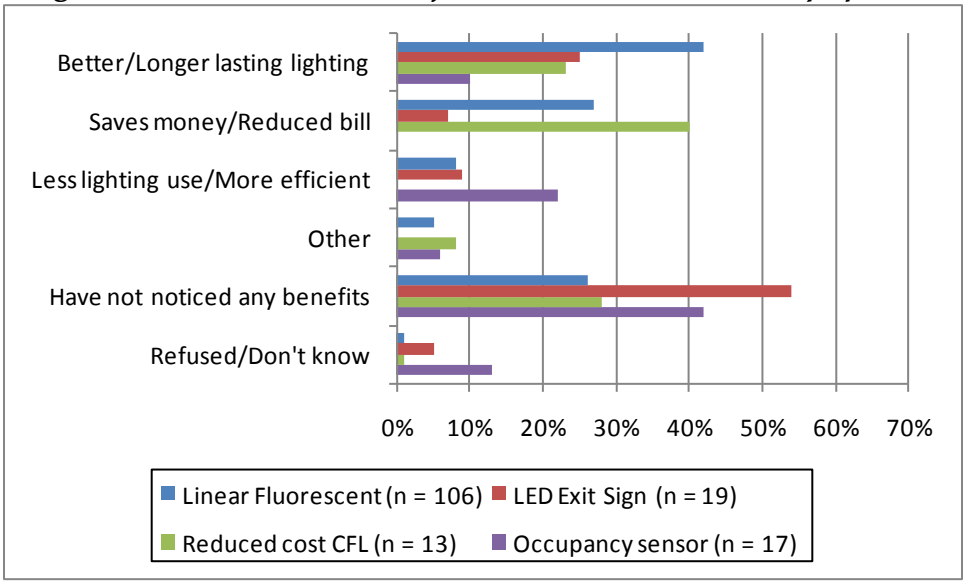
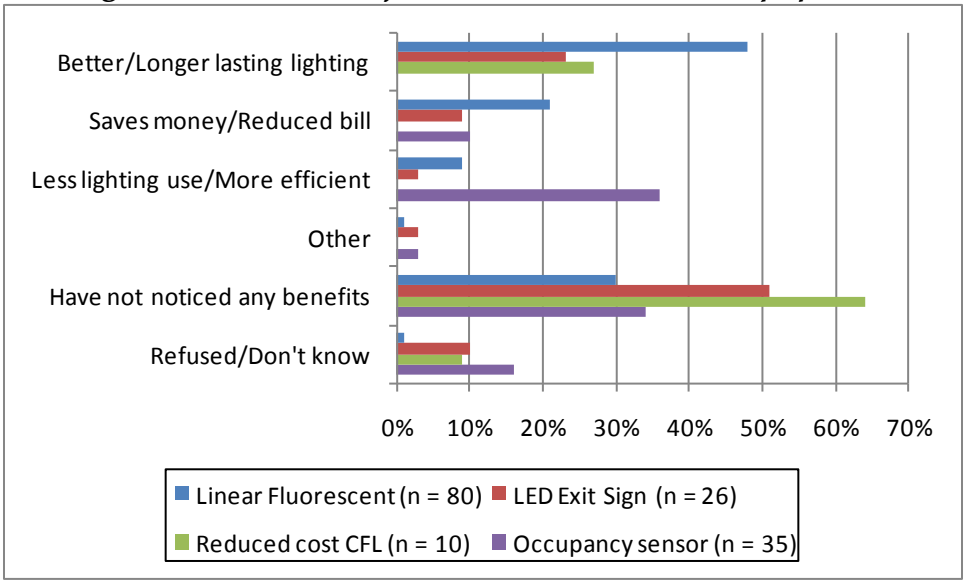


Figure 45.O&R – Benefits Noticed About New Equipment



A small percent of program participants mentioned that they removed some of the equipment (9 percent of Con Edison participants, and 12 percent of O&R).

Table 24 and Table 25 provide a summary of what equipment was removed and the most common reason provided by the survey respondent

Table 24. Con Edison – Program Equipment Removed (n = 26)

What was removed?	Proportion of removed equipment	Reason provided
CFL	85%	Broke/Failed
Linear fluorescent	16%	Broke/failed Didn't like the color output

Table 25. O&R – Program Equipment Removed (n = 11)

What was removed?	Proportion of removed equipment	Reason provided
CFL	85%	Broke/failed
Linear fluorescent	16%	Broke/failed Insufficient light output
Occupancy sensor	16%	Not working properly

3.7.3 Participant Feedback on the Installation Process

Most program participants were satisfied with the installation process, with O&R participants most likely to be satisfied. For those who were not satisfied, the two most common reasons were that the work was not completed or that the contractor was sloppy and left a mess. Although most participants had no complaints, a couple of Con Edison participants specifically mentioned that they felt cheated and lied to. Table 26 provides examples of specific responses.

Table 26. Summary of Reasons Why Customers Were Not Satisfied (Q.4.5)

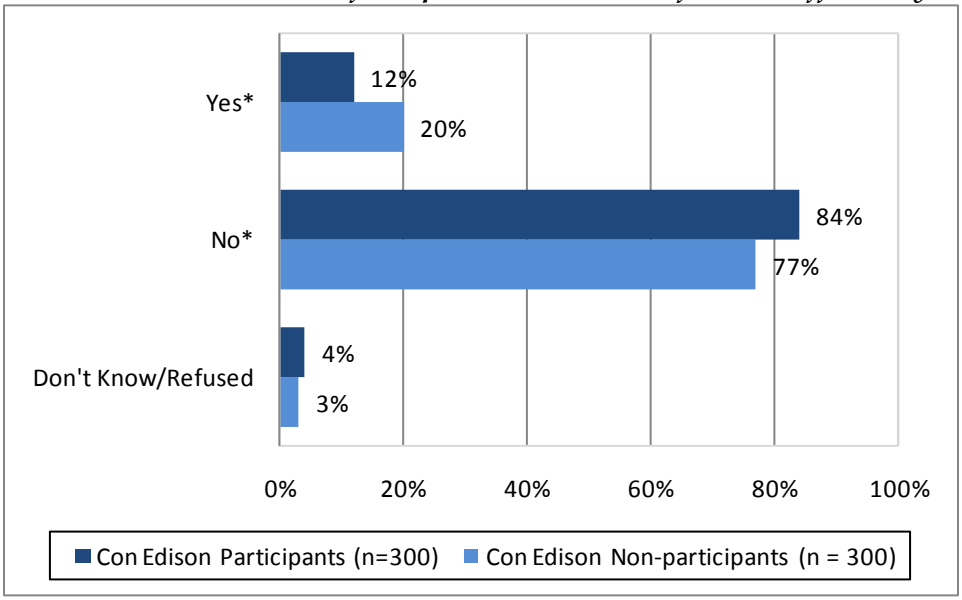
Reason	Specific Examples
Work not completed	• "Installation was never completed. If the planning part of the process does not go right, the installation itself will not go right. The contractors were unprepared, forgot bulbs." • "They never installed the equipment because they said the bulbs were hard to reach." • It's been six months and they haven't finished." • "Job is half done. Not everything was installed. Seemed to be a lot of different companies involved."
Sloppy work/Left a mess	• "Left a mess and they said they would come back to clean up, and never did." • "Sloppy work, leaving things not working, lights were not working for days. The time frame took forever to get this done. A lot of phone calls. Terrible experience overall."
Feel cheated [Con Edison]	• "I was conned." • "Absolutely nothing from the estimate was true. It was a lie."

It is critically important for internal quality control procedures to be sufficient to address the quality of contractor work, including inspection of a higher proportion of projects in both the Con Edison and O&R service territories. The Con Edison approach to formally rating subcontractors will communicate to contractors when they are not meeting program quality requirements and motivate them to improve their rating. The Con Edison and O&R programs also need to ensure that the proper incentives and project assignments are occurring to get projects completed. Better follow-through with customers to address concerns is also needed.

3.8 Interactions with Other Programs

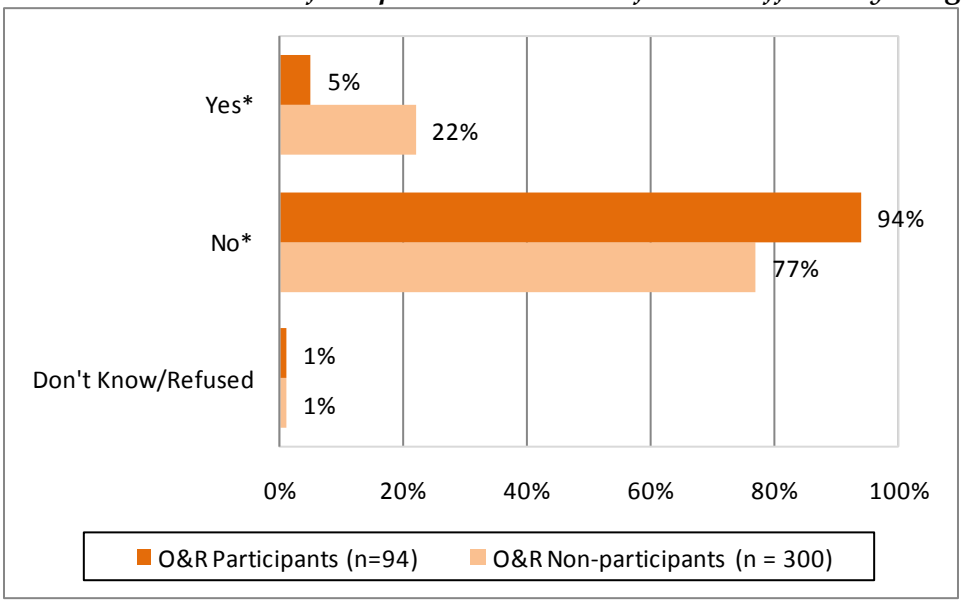
In general, the small business customers targeted by the SBDI program have little awareness of other energy efficiency programs in the region. Figure 46 and Figure 47 below show that both Con Edison and O&R program participants are less aware of other efficiency programs than program non-participants.

Figure 46. Con Edison – Percent of Respondents Aware of Other Efficiency Programs



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Figure 47. O&R – Percent of Respondents Aware of Other Efficiency Programs



Asterisk (*) denotes a statistically significant difference at the 90 percent confidence level

Although program participants are less likely to say that they are aware of other energy efficiency program, those who are aware are more likely to mention their utility as an organization that offers other efficiency programs. Survey respondents also mentioned being aware of energy efficiency programs being offered by retail energy providers, such as Direct Energy or Hudson Energy. These responses demonstrate that small businesses tend to be confused by the energy products offered by retail energy provides compared to Con Edison and O&R's energy efficiency program offerings.

Only one Con Edison customer, a non-participant, recalled participating in a Con Edison rebate program but did not specify a program name. None of the Con Edison or O&R SBDI participants had participated in any other energy efficiency programs.

In contrast, every installation contractor interviewed by the evaluation team is aware of NYSERDA programs. Other programs that were mentioned include Central Hudson (mentioned twice), LIPA, Comverge, National Grid, and a multi-family program through Con Edison. Installation contractors are aware of a lot of energy efficiency programs, both within Con Edison and O&R service territories and throughout New York State. One contractor cited some overlap between other programs and SBDI, although the measures do not completely overlap. Only NYSERDA programs are known to overlap geographically.

Four of the five contractors were working with other programs at the time of the interview, including National Grid, NYSERDA, Con Edison and LIPA. One contractor could not recall all of the programs that their company worked with. All of the contractors participate in the same role with each program as they do with the SBDI program. This potentially creates competition for contractor resources when the SBDI program is looking to ramp up program activity.

The field observations and interviews with contractors did not provide any evidence of double-counting of savings, where program measures may have been rebated through an alternate program.

4 CONCLUSIONS AND RECOMMENDATIONS

This section presents the key conclusions and recommendations from the findings and analyses presented throughout the report. These conclusions and recommendations are organized around the key areas of research. Some of these recommendations require additional on-going program expenditures. Con Edison and O&R must identify which of these costs are possible while maintaining a cost effective program.

The recommendations are applicable to both Con Edison and O&R, except where specified. Since the process evaluation was designed to provide early feedback, many of these recommendations have been implemented as of January 2012.

4.1 PROGRAM PLANNING AND DESIGN

Free measures are not effective in selling the program to eligible businesses. Offering the free measures right away to eligible businesses can make them skeptical of the program. To meet program goals and be cost effective, a substantial number of participants must install reduced cost measures.

Program non-participants were not satisfied with the recommended program measures. Both SBDI participants and non-participants expressed interest in air-conditioning measures. The DPS approved additional refrigeration measures proposed by the Companies. Furthermore, Con Edison is developing a list of proposed measures for the SBDI program, including two heating, ventilation and cooling (HVAC) measures. O&R offers HVAC measures as part of its Commercial and Industrial Existing Buildings Program that was launched in April 2010.

Recommendations for Program Planning and Design

- Consider offering free CFLs and other free measures contingent upon the installation of reduced cost measures. This approach will eliminate second visits that result in only free measure installations.
- Evaluate whether additional HVAC measures may be cost-effective for inclusion in the SBDI program.

4.2 INFRASTRUCTURE DEVELOPMENT

Sales auditors and subcontractors described the SMART system as relatively easy-to-use. Willdan staff and their many subcontractors use the SMART system to upload completed energy survey results and track approved work orders.

The evaluation team was able to match database kWh acquired to the monthly Willdan report. The data extract that included acquired savings matched the reports sent to Con Edison and O&R, which were used for DPS reporting.

Improvements to the contacts table of the SMART system would improve follow up with interested customers. The contacts table is an essential component of the SMART database. It is designed to track contacts with interested and participating customers. Incomplete and inconsistently filled out fields hamper the ability to follow up with customers throughout the participation process. In August 2010, some key variables were missing from the contacts table that would facilitate follow-up. Furthermore, there are multiple spellings of the same company's name and "none" is listed as the contractor for several pending measures.

Many quality control issues in the tracking database are easily fixed by restricting what can be entered in key fields. In the customer contacts table the nature of the interaction with the customer is not well populated in the program tracking database. The field is often blank. The sales auditors use a marketing spreadsheet to track the results of their street sweep activities. These results are not well-recorded in the SMART system. Without this information it is difficult to know what the proper follow-up action is needed.

It is difficult to determine a customer's program status in the SMART system. Additional fields in the SMART system would improve the tracking of program participant and non-participant progress. Follow-up responsibilities need to be clearly assigned to specific staff (sales auditors or installer), with their company affiliation clearly recorded. [40]

Recommendations for Infrastructure and Development

Smart database

- Contacts: Include separate fields to track the SBDI staff person's name and company.
- Contacts: Include a status field that identifies, for each interaction, whether the customers requires follow-up, has completed a step or is final (completed a project or has refused to participate.)
- Contacts: Include contact name, direct telephone number and email (if available) for contact at the customer business.
- Contacts: Link contacts table to eligible customer table. Provide functionality to look up customer in eligible list.
- Contacts: Type of Contact (limit to 6-8 types e.g. incoming call, outgoing call, email),
- Add a look-up table for each subcontractor company to restrict the values entered for contractor company.

[40] As of January 2012, Con Edison staff indicates that follow-up responsibilities are more clearly assigned.

- More clearly record the result of the interaction: Limit the reasons that an energy survey was not completed or scheduled (e.g., decision-maker not present, decision-maker refused, gatekeeper refused, business closed).
- Require key date fields in database be completed. These include survey completion, work order completion, work order signed, and installation complete.
- [Con Edison] Require Willdan monthly reports to include aging statistics on all pending energy surveys, customer agreement/refusals (work orders) and installations. [41]

4.3 MARKETING APPROACHES

Con Edison and O&R increased substantially the quantity of SBDI marketing by early 2011. Slow development of marketing materials hampered outreach efforts in the first year of the Con Edison and O&R programs. Con Edison has developed additional SBDI marketing materials after a slow start. Con Edison has focused significant efforts on the overarching Green Team campaign, designed to raise general awareness of the EEPS programs. O&R has substantially increased its marketing efforts and adopted "Lighten Up" as the program name,. O&R has aggressively marketed the program with many materials, including a new website, sales kit folder, business cards for field staff, radio ads, newspaper/magazine ads, case studies and customer testimonials, to name a few.

Marketing materials must demonstrate the program's legitimacy by strongly branding the program as Con Edison and O&R programs. The marketing collateral is an important vehicle for providing customers necessary program information to reference and share with decision-makers. The program has encountered resistance from some customers, who suspect that implementation staff might be ESCOs. Many customer testimonials and videos have been created that foster goodwill and reinforce legitimacy.

Many small businesses are suspicious of door-to-door solicitations. Sales auditors have experienced difficulty getting entre into businesses, and initially had little identification associating them with Con Edison or O&R. In early 2011, Con Edison approved specifications for Power of Green, Green Team T-shirts and jackets for implementation contractors and subcontractors. Using the Con Edison Green Team brand may make sales auditors and subcontractors more recognizable as legitimate representatives of a Con Edison program. Based on interviews with implementation contractors in March 2011, SBDI field staff had not yet received these materials.[42] O&R subsequently provided businesses cards to SBDI staff that included the O&R logo in addition to Willdan's logo.

Most subcontractors provide turn-key service, providing all program functions, from sales auditor to installer. This provides continuity for the customer, and assures the installer that the project specifications are correct and consistent with their approaches. In these various roles,

[41] As of January 2012, Con Edison staff indicate that Willdan provides aging statistics, on a requested basis.
[42] As of July 2011, Con Edison staff indicates that auditors and subcontractors wear Green Team clothing.

the subcontractor may be the only program contact a customer has. The Con Edison SBDI marketing materials, however, include only Willdan and Free Lighting logos (in addition to the utility logos), which has caused some confusion for eligible businesses when these subcontractors contact them. [43]

Recommendations for Marketing Approaches

- [Con Edison] Require Willdan and Free Lighting sales auditors and subcontractors to wear the Con Edison Green Team clothing.[44]
- [Con Edison] Develop hardcopy marketing materials that include case studies and testimonials that can be used by sales auditors.[45]
- Develop hardcopy marketing brochures that include the logos of authorized subcontractors to establish their legitimacy. [46]
- [Con Edison] Include on the website more detailed case study information, including the business name, specific location, information about the specific equipment, photos of the business (and new equipment), and quotes from the business about the benefits they have seen.[47]
- [Con Edison] Add links to the SBDI website to the previously developed video case studies for the Manhattan Natural Foods Store and Queen Small Business.

4.4 CUSTOMER ACQUISITION

The Con Edison and O&R SBDI programs have relied on the street sweep approach to complete energy surveys with eligible businesses. The evaluation staff observed that the door-to-door method appeared difficult and labor intensive.

Chain accounts have many eligible business locations, which could substantially increase the number of projects completed by the SBDI program. Chain accounts are likely to have easier access to capital than independently owned businesses, making upfront cost barriers less of an issue. Contact with an individual at the corporate level, though more difficult to achieve, may

[43] As of January 2012, Con Edison staff indicates that Willdan's subcontractors mostly do installations only, and take leads from the Willdan sales auditor staff, who conduct the energy surveys. This has helped to broaden the appeal of the program to many more contractors, who do not wish to do the energy surveys. Con Edison staff indicates that this approach has helped to increase savings.
[44] As of July 2011, Con Edison staff indicate that sales auditors and subcontractors wear Green Team clothing.
[45] As of July 2011, Con Edison staff indicate these marketing material are in place.
[46] As of May 2012, O&R staff indicates that installation subcontractors have Lighten Up business cards with both Willdan and O&R logos.
[47] As of July 2011, Con Edison staff report that case studies are included in the 2011 EEPS marketing campaign.

result in installations at multiple sites. Outreach to the individual stores level has not proven successful for capturing the attention of the decision-makers. Chain account respondents confirmed that decision-makers are at the corporate level and it is difficult to reach them through the individual stores. Some chain accounts have contracts with vendors who replace lighting and have a set schedule for upgrading facilities.

Reaching the decision-maker can be a significant challenge to engaging small business facilities. Managers and decision-makers often are not present when sales auditors visit or call a business. A gate keeper may conclude that the program is not of interest because they assume it is another attempt to sell something to them. As a result, the information never reaches the decision-maker.

Customers require multiple outreach attempts to identify and engage the decision-maker with the authority to install the efficiency measures. A large portion of businesses in the SMART database contact table do not indicate follow up when the manager or decision-maker was not present**.** The program should include guidelines for follow-up with contacted customers when the decision-maker is unavailable or there is a pending decision. There should also be follow-up protocols for businesses that completed an energy survey.

Phone survey results showed that when customers had questions following an energy survey it was difficult to get answers. After customers obtained their energy survey, the sales auditors did not consistently return in person to present the results. Both Con Edison and O&R customers mentioned they had unresolved questions. The energy survey report includes the 1-888 WILLDAN number for Con Edison and the 1-877-786-0555 number for O&R SBDI. The energy survey results often do not include the full name of the sales auditor. Finally, the energy survey report does not always include enough detail regarding the recommendations for the customer to make an informed decision. For example, in Con Edison service territory, a work order detailing the product description, model number, recommended quantity of each measure and location is not always provided.

Recommendations for Customer Acquisition

- Target chain accounts at the corporate level as much as possible (e.g., Chief Financial Officer or Chief Operations Officer). This may require Con Edison or O&R utility staff to take the lead in introducing the program.
- Use Con Edison and O&R utility staff to reach out to chain accounts that do not have existing relationships with Willdan or Willdan's subcontractors to leverage the utility brand recognition and relationship with the corporate customers.
- Provide energy survey results to the customer right away. Consider portable tablet computers that can be used for email and to obtain customer signatures.

- Develop protocols for follow-up. Once an account is contacted for the program, the program should contact that customer a predetermined number of times (e.g., once a week) within a limited time frame (e.g., one month to two months) to establish a final decision.[48]

- Use the SMART system to trigger a variety of follow-up activities (e.g., telephone calls, brochure mailings or visits), especially after energy survey results have been provided to the eligible business.

- Require sales auditors to provide a work order as part of the energy survey report, detailing the product description, model number, recommended quantity of each measure and location.

- Modify the energy survey tool to include contact information for the sales auditor on the summary report, such as a cell phone number and email address. This will make it easier for eligible businesses to follow up directly with the sales auditor (someone they now know) who is in the best position to answer questions about their location.

- Include the full name (first and last) of the surveyor is included in the summary report provided to the business.

4.5 PROGRAM DELIVERY

Customer leads and energy surveys completed have steadily increased at similar rates for both Con Edison and O&R since the SBDI program began. As of June 2011, the rate of completed installations, however, lags behind the rate of increase in energy surveys. The installation of measures with signed work orders has been slow, with more than 50 percent of installations taking more than two weeks to start.

Changes to work orders subsequent to customer agreement causes installation delays and participant dissatisfaction. Willdan completed sales audits (and work orders) in the Con Edison service territory have often required changes prior to installation .Installation contractors expressed some frustration with the quality of the surveys (and subsequent work orders). Willdan is currently inspecting 10 percent of all energy surveys to verify the accuracy of the report and the correct use of the survey tool. This will assist in identifying the items that should be addressed in training.

Installation contractors do not receive penalties (or bonus payments) related to completing projects within a specific timeframe. In both Con Edison and O&R service territories, turnkey contractors and installation contractors are encouraged to complete the installation, as soon as

[48] As of January 2012, Con Edison staff indicates that this is now being done.

possible. There are no additional financial penalties (or rewards) associated with the timing of the installation.

Willdan sales auditors in the Con Edison service territory receive bonus payments for completing more energy surveys and acquiring energy savings (i.e., signed work orders). There is no bonus payments for ensuring that the measures listed on signed work orders are actually installed. Therefore, the current bonus payment structure only encourages quantity of energy surveys and signed work orders, and does not encourage sales auditors to ensure that the project specifications are adequate for the installation contractor. In contrast Free Lighting sales auditors are only paid when the installation is completed.[49]

Based on customer feedback on program processes and complaints about the quality of contractor work, the 10 percent rate of inspection of program installations currently being undertaken by Willdan is not sufficient. In the early years of a new program installation contractors are still feeling out program requirements and Willdan has the responsibility to oversee a large number of subcontractors. Quality control is important for ensuring that the information recorded in the program tracking system is correct (e.g., quantity, business type, hours of operation), and for customer satisfaction with the program.

The Willdan inspection procedures in Con Edison's territory provide a clear process for contractors to understand how they are performing compared to program expectations. In O&R territory, Willdan inspects at least 10 percent of completed projects randomly and 100 percent of those that have a complaint. Given the much smaller pool of subcontractors, Willdan has daily contact and more control over contractor activities, but no formal process for selecting sites for inspections.

Recommendations for Program Delivery

- [Con Edison] Pair sales auditors with installation contractors to help streamline the hand-off process and familiarize sales auditor with specific installation contractor capabilities and preferences.
- [Con Edison] Pay half of the sales auditor bonus payment when work order is signed and the remaining half when the project is installed.
- For installation contractors, restructure the reimbursement of the equipment with a 10 percent bonus for installations completed within two weeks. Penalize contractors that have a predetermined number or percentage of installations that are not completed within three weeks.

[49] As of January 2012, Con Edison is paying half the bonus payment at the time the survey is completed, and the other half when the installation is complete.

- Require Willdan and Free Lighting to inspect 10 percent of each subcontractor's completed projects, with increased percentage of inspections for contractors who do not perform well, and fewer inspections for those who do well.

4.6 SATISFACTION WITH THE PROGRAM

Approximately 75 percent of both Con Edison and O&R program participants report being satisfied with their overall SBDI program experience. Con Edison participants were most satisfied with the energy survey process. O&R participants were most satisfied with the installation process associated with the SBDI program.

Participant dissatisfaction with both programs was related to CFLs and to the contractors. First, some participants reported that free CFLs burned out quickly or did not produce adequate light. Of all program equipment installed, participants were most likely to remove CFLs. Second, some program participants were dissatisfied with program contractors who left jobs unfinished or did not return with free CFLs that were promised.

Recommendations for Satisfaction with the Program

Many of the recommendations discussed above will lead to increased participant satisfaction. These include:

- Better tracking that leads to consistent follow-up with interested customers,
- Energy surveys with more accurate and complete information,
- Faster program delivery through incentives and monitoring,
- Offering additional measures to appeal to a wider variety of businesses, and
- Follow-up with all customers who express an interest in participating.

4.7 INTERACTIONS WITH OTHER PROGRAMS

The small business customers targeted by the SBDI program are unaware of other energy efficiency programs in the region. The majority of the small business customers were unaware of other energy efficiency programs. The great majority had not participated in an energy efficiency program other than the SBDI program.

Most installation contractors interviewed are actively participating in other energy efficiency programs in the New York area. Four of the five contractors interviewed are working with other energy efficiency programs in a similar role as they do with the SBDI program. This creates competition for contractor resources.

There is no evidence of double-counting of program savings. The field observations and interviews with contractors did not provide any evidence of double-counting of savings, where program measures may have been rebated through an alternate program. Con Edison, however found an instance of potential double-counting between SBDI and the Targeted DSM program.

Appendix A. Research Areas

Six broad categories of research were established for the evaluation of the EEPS programs. Within each of these categories, research questions specific to the SBDI program were identified. Figure A1 presents the research area, specific research questions within each area, and the section of the report that addresses each question.

Figure A1. SBDI Evaluation Objectives

Research Area	Specific Research Issues	Section in the Report
1. Program Planning and Design	1.1. Possible improvements for cost-effectiveness, energy savings, participation?	Section 2.2.1
	1.2. Process/design limitations re: ability to meet goals, implementation strategies?	Section 2.2.1
	1.3. Measure changes/additions to improve cost-effectiveness and participation?	Section 2.7.1
2. Infrastructure Development	2.1. Info needed for program management and reporting tracked and accessible	Section 2.3
	2.2. Accessibility of program tracking system for evaluation and follow-up purposes.	Section 2.3
	2.3. Accuracy of tracking data	Section 2.3
	2.4. Completeness of data (i.e. all fields are populated)	Section 2.3
	2.5. Assess program quality control procedures to assure accuracy in reported savings.	Section 2.6.4
	2.6. Assess how easily data can transferred between SMART system and other program with other data management	Section 2.3

3. Marketing & Customer Acquisition	3.1. Assess ability to transfer effectiveness of marketing partners/channels, including customer response to street sweep approach	Section 2.5.1
	3.2. Assess effectiveness of program approach for chain accounts	Section 2.5.2
	3.3. Examine customer acquisition approaches for potential free-rider issues.	Section 2.5.6
	3.4. Use and satisfaction with customer-service call center.	Section 2.5.4
	3.5. Use and satisfaction with website.	Section 2.4
	3.6. Drivers and barriers to participation.	Section 2.5.3
	3.7. Drivers and barriers to installing non-free measures.	Section 2.5.5
4. Program Delivery	4.1. Assess approach to recruit and retain subcontractors for program delivery.	Section 2.6.3
	4.2. Subcontractor perception of benefits of delivering the program.	Section 2.6.3
	4.3. Barriers to sub contractor participation.	Section 2.6.3
	4.4. Assess training and certification of subcontractors	
	4.5. Program management of sub-contractor to manage work flow (minimize time lags for contractors and participants).	Section 2.6.2
5. Satisfaction with Program	5.1. Customer satisfaction with program and measures.	Section 2.7.2
	5.2. Contractor satisfaction and possible improvements.	Section 2.6.3
6. Interactions with Other Programs	6.1. Areas of potential program overlap.	Section 2.8
	6.2. Trade ally/customer understanding of other programs.	Section 2.8
	6.3. Determine if double-counting of savings is an issue.	Section 2.8

Appendix B. Evaluation Methodology

This appendix describes the evaluation methodologies used to gather information for this report. The evaluation approach included both primary and secondary data collection.

Review of Program and Marketing Materials

KEMA conducted the following background review activities before interviewing program implementation staff:

- Utility filings and NYPSC Orders
- Program websites

Based on the background review, the team refined the specific evaluation instruments planned to capture research issues unique to the Con Edison and O&R SBDI programs.

During and following the interviews, the process team received additional materials from the program managers. The following materials and resources were reviewed for this report:

- Program implementation request for proposals
- Program implementer contracts
- Program database extracts
- Willdan Marketing and Implementation Plan
- Contractor Procedures Manual
- Contractor Training PowerPoint
- Program process diagrams and logic models
- Energy survey tool (i.e., SBDI Savings Tool)
- Quality Assurance/Quality Control (QA/QC) Procedures
- QA/QC reported results
- Marketing materials
- Example weekly reports
- Utility scorecards

Utility and Implementation Contractor Staff Interviews

The evaluation team conducted interviews with individuals responsible for SBDI program design, management, and implementation. Table B1 summarizes the number of interviews the team conducted with representatives from each of the utilities and implementation contractor staff.

Table B1. In-depth Interviews with Utility and Implementation Staff Sample Sizes

Target	Con Edison	O&R	Total
Utility program staff	9	2	11
Implementation contractor staff	4	2	6
Sales auditors (energy surveyors)	3	2	5
Installers (subcontractors)	3	2	5
Total	**19**	**8**	**27**

PARTICIPANT SURVEY

APPRISE Inc. conducted telephone surveys with Con Edison and O&R program participants. The sample frame was developed using the entire participant population through August 10, 2010. Surveys were conducted in November 2010 through first week of January 2011. APPRISE attempted to reach each participating customer through at least eight call attempts scheduled at different times of day and days of the week. Interviewers left a scripted message when they encountered voice mail, including a toll-free number. Messages are left initially and every three days thereafter. These steps were taken to minimize non-response bias potential due to the timing of the attempted completions with surveyed customers.

We limited the sample population for the participant surveys to meet the following conditions:

- Installed at least one measure through the program, and
- Was not a chain account identified by Con Edison with a corporate code.

Given these parameters, we conducted a census of O&R projects with installed measures. The sample population is based on information from the Willdan SMART system tracking database captured through August 10, 2010. Table B2 and Table B3 summarize the number of CATI survey respondents per participant account type.

Table B2. Con Edison - Participant Sample Frame and Surveys Completed

Account Type	CATI Sample Population		CATI Surveys Completed	
	Count	%	Count	%
Participants				
Free measures only installed	2,560	70%	180	60%
Customer cost measures installed	976	27	100	33%
Measures installed, other pending installations	132	3	20	7%
Total Participants	**3,665**	**100%**	**300**	**100%**

Table B3. O&R— Participant Sample Frame and Surveys Completed

Account Type	CATI Sample Population		CATI Surveys Completed	
	Count	%	Count	%
Participants				
Free measures only installed	23	10%	8	9%
Customer cost measures installed	208	88	82	87%
Measures installed, other pending installations	5	2	4	4%
Total Participants	**236**	**100%**	**94**	**100%**

Table B4 presents the final disposition of the calls made for the participant telephone surveys based on the disposition codes provided in The American Association for Public Opinion Research's (AAPOR) *Standard* Definitions.[50] Based on the algorithms provided in this document we calculate a 22.2% response rate and a 21.3% refusal rate for participants. It is important to note that the response and refusal rates presented can be indicators of potential selection bias in the results despite the sample being randomly selected. It is difficult to know how much uncertainty this might be introducing to the extrapolation of the survey results to the population, however, this response rate is reasonable for a study of this nature.

Table B4. Final Participant CATI Recruitment Disposition

Disposition Code	Disposition Description	Participants
1.1	Complete	394
1.2	Partial	27
2.11	Refusal	377
2.21	Respondent Never Available	126
2.22	Answering Machine	149
2.33	Language Barrier	158
3.11	Not Attempted or Worked	66
3.12	Always Busy	5
3.13	No Answer	284
4.20	Fax/Data Line	26
4.30	Non-Working Number	162
4.70	Not Eligible	81
	Total Customers Called	1,855
	Response Rate	22.2%
	Refusal Rate	21.3%

The sample was designed to exceed an absolute precision level of +/- 10 percent at the 90 percent confidence level. The survey instrument for the participant survey is provided in Appendix C.

[50] http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156

NON-PARTICIPANT SURVEY

APPRISE Inc. conducted telephone surveys with Con Edison and O&R program non-participants. Surveys were conducted in January 2011 through first week of March 2011. APPRISE attempted to reach each non-participant through at least eight call attempts scheduled at different times of day and days of the week. Interviewers left a scripted message when they encountered an answer machine, including a toll-free number. Messages were left initially and every three days thereafter. These steps were taken to minimize non-response bias potential due to the timing of the attempted completions with surveyed customers.

We limited the sample population for the non-participant survey to meet the following conditions:

- Contacted by the program,
- No installations completed,
- No pending installations, and
- Is not a chain account identified by Con Edison with a corporate code.

Table B5 and Table B6 summarize the number of CATI survey respondents per non-participant account type.

Table B5. Con Edison – Non-participant Sample Frame and Surveys Completed

Account Type	CATI Sample Population		CATI Surveys Completed	
	Count	%	Count	%
Non-Participants				
Contacted, no survey	15,520	92%	150	50%
Survey, no install	1,350	8%	150	50%
Total Non-Participants	**16,870**	100%	**300**	100%

Table B6. O&R – Non-participant Sample Frame and Surveys Completed

Account Type	CATI Sample Population		CATI Surveys Completed	
	Count	%	Count	%
Non-Participants				
Contacted, no survey	4,790	95%	250	83%
Survey, no install	274	5%	50	17%
Total Non-Participants	**5,064**	**100%**	**300**	**100%**

Table B7 presents the final disposition of the calls made for the non-participant telephone surveys consistent with the AAPOR Standard Definitions. Based on the algorithms provided in this document we calculate a 14.3% response rate and a 28.5% refusal rate for the non-participant survey. Like the participant dispositions reported earlier, it is difficult to know how much uncertainty possible selection bias might be introducing to the extrapolation of the survey results to the population. However, this response rate is reasonable for a study of this nature.

Table B7. Final Non-Participant CATI Recruitment Disposition

Disposition Code	Disposition Description	Non-Participants
1.1	Complete	600
1.2	Partial	14
2.11	Refusal	1195
2.21	Respondent Never Available	563
2.22	Answering Machine	134
2.33	Language Barrier	201
3.11	Not Attempted or Worked	134
3.12	Always Busy	4
3.13	No Answer	398
4.20	Fax/Data Line	82
4.30	Non-Working Number	872
4.70	Not Eligible	391
	Total Customers Called	4,588
	Response Rate	14.3%
	Refusal Rate	28.5%

The sample was designed to exceed an absolute precision level of +/- 10 percent at the 90 percent confidence level. The survey instrument for the non-participant survey is provided in Appendix C.

Survey Pretests

The participant and non-participant surveys were pretested prior to the main data collection effort. The phone surveyors were briefed on the program nomenclature and survey goals prior to making any calls. After approximately five surveys, each instrument was reviewed by APPRISE Inc. and KEMA to identify issues and implement improvements. A memorandum was prepared outlining the results of the pretests and the recommended survey instrument changes. The participant and non-participant survey pretest memorandums are presented in Appendix D.

Ride-alongs for Field Observations

KEMA completed four days of ride-alongs to observe implementation contractor staff approach to program delivery and customer response to field activities. The following implementation staff was observed:

- Con Edison sales auditor (1 day)
- O&R sales auditor (1/2 day) and installer (1/2 day)
- Con Edison installer (1 day)
- Nexant QA/QC inspector in Con Edison territory (1 day)

Appendix C. Interview Guides and Survey Instruments

This Appendix contains the following in-depth interview guides and survey instruments:

C1. Sales auditor interview guide
C2. Installer interview guide
C3. Chain account interview guide
C4. Participant phone survey
C5. Non-participant phone survey