California Energy Efficiency Financing

Small Business Market Baseline

Study Report

Energy Division
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Abbreviations in Report

Abbreviation	Definition
AFUE	Annual Fuel Utilization Efficiency
ARRA	American Recovery and Reinvestment Act
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CCS	California Commercial Saturation Study
CDFI	Community Development Financial Institutions
CHEEF	California Hub for Energy Efficiency Financing
CIS	Customer Information System
CPUC	California Public Utilities Commission
DK	Don't Know
EE	Energy-efficient
EER	Energy Efficiency Rating
EMSs	Energy Management Systems
ESA	Energy Services Agreement
ESCO	Energy Services Company
FI	Financial Institutions
IOU	Investor-owned utilities
IR	Interest Rate
LCI	Large Commercial and Industrial
MMMF	Master-Metered Multifamily Finance
NAICS	North American Industry Classification System
OBF	On Bill Financing
PACE	Property Assessed Clean Energy
PG&E	Pacific Gas & Electric
PIPs	Program Implementation Plan
RCAC	Rural Community Assistance Corporation
SB	Small Business
SBA	Small Business Administration
SBDC	Small Business Development Center
SCE	Southern California Edison
SCEIP	Sonoma County Energy Independence Program
SDG&E	San Diego Gas & Electric
SEER	Seasonal Energy Efficiency Ratio
SMUD	Sacramento Municipal Utility District
SoCalGas	Southern California Gas Company
TCU	transportation, communications, and utilities
VFDs	Variable Flow Drives
VSDs	Variable Speed Drives

1. Executive Summary

1.1 Study Overview and Purpose

This report summarizes results from a Finance Small Business (SB) Market Baseline Study conducted by Opinion Dynamics and Dunsky Energy Consulting. The purpose of this study is to support the California Public Utilities Commission (CPUC) and the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) efforts to launch and evaluate a Small Business Financing Pilot Program[1]. This study characterizes the SB market for energy efficient (EE) financing prior to the expected Pilot launch in 2019. As a baseline market characterization, this study intends to serve both as a point of comparison to measure market impacts from the Pilot over time and as information that guides the Pilot's design and implementation strategy.

As a baseline for the Pilots, key market metrics were developed based on the Pilot's design strategy and where it could have an impact on the marketplace. The key market metrics quantified in this study could change due to the Pilot, any similar successor initiatives or market forces. These include:

- The proportion of SBs doing energy-related or energy efficient upgrades
- The proportion of upgrades that are financed by SBs
- The proportion of SBs using financing in Investor-Owned Utility (IOU) resource-acquisition programs
- Energy-related and energy efficient loan volume among SBs
- The average size and depth of upgrades among SBs
- The types of financing that SBs use for upgrades
- SB awareness of financing options for energy-related upgrades
- SB perceived barriers to energy efficiency upgrades
- SB perceived barriers to financing energy efficiency

Notably, this study only collected data from small businesses, or the demand-side of the market. While a comprehensive baseline study would establish a baseline for both the supply- and demand-side of the market, a reliable measurement of the supply of non-residential energy efficiency financing (loan volume, number of loans, average loan size, etc.) is not possible via supply-side sources due to the lack of publicly available information, reluctance among lenders to release information, and the pervasiveness of financing among small businesses with no way to identify the purpose of the loans or the segments receiving them. Thus, this study relied upon a demand-side survey with 443 small businesses that captured both demand-side metrics as well as the data needed to extrapolate supply-side metrics such as loan volume. All baseline data are derived from secondary research, a statewide telephone survey with 443 small businesses in CA investor-owned utility territories, in-depth interviews with small businesses who financed upgrades recently, and web-based data collection with small businesses who upgraded energy-related equipment in the last two years.

1 The Statewide Small Business Finance Pilots (including On- and Off-Bill Small Business Lease Pilots and the Small Business Loan Pilot) will be the first California Hub for Energy Efficiency Financing (CHEEF) Pilots available to non-residential customers.

1.2 The CA Small Business Market Characterization for Energy Efficient Financing

The study reveals a number of important trends in the types of energy upgrades that small businesses are undertaking, and how they are paying for those improvements.

Energy efficient upgrades are common among small businesses, particularly for lighting

Over half of California Small Businesses undertook an energy related upgrade, and of these most included at least one efficiency measure: Survey results show that many small businesses frequently upgrade energy-using equipment. Approximately half (53.5%) of SBs upgraded energy-related equipment in the past two years, and of these 80% included at least one energy efficient measure (representing 42.7% of all Small Businesses)[2]. However, of the specific measures included in the reported energy related improvement projects, just 56% were efficient.

Lighting measures made up the vast majority of energy related upgrades, and the majority of these included efficient lighting technologies: Overall, we found that lighting upgrades were most common; 78% of businesses who upgraded energy equipment reported including lighting measures. Notably, 72% of the lighting upgrades were either verified or likely energy efficient, demonstrating the prevalence of efficient lighting technologies such as LEDs and CFLs.

For larger pieces of equipment, small business owners are more likely to replace existing equipment with the standard efficiency option than is the case for lighting. For cooling, refrigeration, motors/fans and heating upgrades, less than half of the reported measures could be classified as energy efficient.

External financing for energy upgrades is rare among small businesses, and is mostly supported through conventional lending

Very few small businesses use external financing for equipment upgrades: Overall, 4% of California small businesses used external financing to upgrade energy equipment in the past two years.

Small businesses utilized a wide range of financing options, with conventional sources supporting the bulk of externally financed projects: Among the survey respondents who externally financed energy upgrades, conventional bank financing in the term loans or revolving lines of credit were most common. Equipment leases and credit card financing (not paid off within 30 days) were also identified in two cases each. For more specialized financing, the study found one respondent who used a Small Business Development Center (SBDC) loan, and another who used a utility OBF program, and another who was financed through their contractor. The study did not however encounter any respondents who had used C-PACE financing, which is not surprising given the limited number of C-PACE loans issued each year in California. Overall, it appears that conventional sources of financing supported the bulk of the energy related financing projects, suggesting that specialized financing products currently do not have a significant reach.

[2] A ratio estimator was calculated and applied to the self-reported number. The ratio of verified EE to self-reported EE was 1.19. In other words, the net effect of the reporting errors was a bit of under-reporting of EE installations. Applying that ratio to the self-reported value of 36.1% results in an adjusted estimate of 42.7% of SBs installing EE measures over the previous 2-year period. This and other adjusted estimates are reported with 80% confidence.

Externally financed energy upgrade projects were on average more than twice as costly as self-financed projects, and included larger pieces of equipment

Small businesses invested an average of $8,715[3] for energy-related upgrades in general, or similarly $8,751 for projects that included at least one efficient measure (all values excluding solar equipment costs). However, externally financed energy upgrade projects cost on average over $16,700, and were more than twice as costly as those that were self-financed ($7,800 per project). Interestingly, over half of all self-financed energy upgrades cost less than $5,000, which may help to explain why such a small portion of projects used external financing, but instead used cash on hand.

External financing tends to be used for more costly energy upgrades that include larger pieces of equipment, such as heating, cooling and envelope improvements: While many of the self-financed projects focused on lighting upgrades, externally financed projects tend to include larger equipment items such as Cooling, Motors/fans, VSDs, and building envelope upgrades. Moreover, half of the externally financed projects (9/18) cost more than $10,000, compared to just 16% of the self-financed projects.

Energy upgrades appear to make up just a portion of typical small business upgrade project costs: The study revealed that respondents typically over-reported project costs during initial questioning, often including other renovation project cost such as painting, new walls, and other construction or solar equipment.

As a result, we found that energy-related project costs were on average just one-third of the original cost estimates. This study did not specifically seek out to assess the average portion of renovation project costs that are spent on energy using equipment. However, if this 1/3rd corrective ratio is indeed typical, it suggests that the Pilot's 70:30 EE to non-EE expenses requirement may pose a barrier to some customers.

Use of external financing among IOU resource program participants is no more common than for SB energy upgrades in general

The use of financing among EE rebate participants is not significantly different than among the population of SBs who conducted energy upgrades in general. Among 2013-2014 non-residential IOU resource program participants, survey results show that the use of financing was just 10%, which is similar to our survey findings from the general marketplace where 7.8% of small businesses who performed EE upgrades used financing.

The OBF program represents a substantial portion of the statewide lending for SB efficiency projects, but conventional lending supports the majority of financed projects that took rebates: The IOU's Statewide OBF program volume in 2015 was $30M, representing 11% of the annual energy-related lending volume estimated through this study. Based on the IOU survey respondents, we estimate this to represent 34% of the total lending for efficiency projects among small businesses ($88M per year, equal to ½ of the two-year volume estimated from this study). The majority of the efficiency projects were supported through conventional bank loans or lines of credit, (which is similar to the general marketplace for energy upgrades). Notably, few customers reported using equipment leases (8%) and none reported using C-PACE financing.

The use of financing should be tracked consistently in IOU resource program surveys: We note that the financing questions were omitted from the 2015 version of the impact evaluations, which impedes the ability to track any changes in the use of financing among EE rebate recipients over time. To effectively track the

[3] Average excludes solar purchases, upgrades without associated cost, and respondents that said "Don't know" or "Refused"; Including solar purchases, the average is $64,191 (n=170)

use of financing and the impact of the CHEEF pilots and OBF programs, ***we strongly encourage all future commercial impact evaluation efforts to include a finance question battery.***

Planned energy related upgrades in the near future are consistent with historically reported upgrade behavior

Almost half of responding SBs (47%) indicated that they plan to purchase energy related equipment in the next two years: This is consistent with the reported portion of small businesses who reported to have completed an upgrade in the past two years (53%), suggesting that the overall market size could be maintained.

There is much variation among the types of upgrades that are planned, with lighting dominating most businesses upgrade plans: Our study found that lighting upgrades are planned by 35% of all businesses or 74% of businesses who are planning any type of energy related upgrade, which is consistent with reported upgrades in the past two years. There is also a significant incidence of businesses planning to upgrade their cooling (32%), heating (23%), refrigeration (24%) equipment and motors (16%).

A Substantial Portion of Small Businesses Would Choose EE equipment

Among small businesses with specific plans to upgrade equipment in the next two years, 75% reported being "extremely likely" (43%) or "likely" (32%) to include efficiency equipment. This is consistent with the earlier findings that nearly 80% of SB energy replacement projects included at least one EE measure, suggesting that there is an openness to investing EE measures among small businesses.

Equipment Costs Represent a Key Barrier to Pursuing EE Upgrades Among Small Businesses

While many businesses reported being likely to select EE equipment in their upgrades, a significant portion (53%) of the businesses surveyed also reported barriers to purchasing EE equipment, which is consistent with the current market results that showed that just 57% of measures (41% of non-lighting) indeed qualified as energy efficient. Concerns over the cost of EE equipment was consistently the top barrier among 40% of the respondents, with a significant portion (33%) also wondering if the additional cost of EE equipment was justified by its performance.

Successful EE financing programs aim to address this "first-cost" barrier: they provide the capital to businesses at the time of purchase and allowing them to repay from the accrued energy bill savings down the road. This suggests that for the CHEEF SB pilots to succeed, they will need to address the first-cost barrier, and provide information that increase customer confidence that the savings will be sufficient to cover the financing repayments.

Many Small Businesses are Interested in Financing EE Upgrades

The survey revealed that, despite the current low use of financing for energy upgrades (less than 5% overall), a significantly larger portion of small businesses would consider using financing to support future equipment purchases. Among respondents who said they were extremely likely to purchase EE equipment, 41% said they would consider financing. Among those who were NOT extremely likely to select EE equipment in the future, 64% of them indicated that they would be more likely to install EE equipment if there were small business financing options available.

Awareness of EE Financing Options is Severely Lacking

Overall, we found that while a third (unaided) to half (aided & unaided) of small businesses are aware of financing options that can be used to support energy related upgrades, but that a much lower portion were aware of efficiency-specific options such as OBF and C-PACE (see table below).

Table 1. Financing Awareness

Financing Options	Unaided Awareness (n=443)	Aided and Unaided Awareness (n=443)
Any financing option	36%	52%
C-PACE	1%	17%
On-Bill-Financing (OBF)	0.23%	9%

The awareness results coupled with the low incidence of use of financing for energy upgrades suggest that small businesses could benefit from more information on how to access and apply financing for their energy upgrade projects.

Interestingly, when provided with a brief description of two of the currently available specialized EE financing products the portions of businesses who expressed an interested in using these products is much higher than the current uptake rate. While less than 5% of all small businesses currently use financing for energy upgrades, 37% and 27% responded that they would be interested in using OBF or C-PACE, respectively.

An Aversion to Debt, Concerns Over the Eligibility and The Hassle Factor are Also Important Barriers to EE Financing

Among businesses who would not consider financing an EE upgrade, a substantial portion (81%) were concerned over taking on additional debt, which may help explain why so little financing is currently used to support energy upgrades. Further barriers to financing were the perception that applying for financing is a hassle (43%), a lack of awareness for where to find this type of financing (23%) and concern that the business would not meet loan qualifying criteria (14%) also appear to play an important role in preventing small businesses from pursuing financing of EE equipment.

Based on the barriers identified, solutions to increase uptake of EE financing could include:

- Reducing the hassle associated with applying for financing;
- Offering cash-flow positive financing terms (where energy savings are demonstrated to exceed the debt service);
- Increasing awareness of financing; and
- Expanding underwriting criteria.

To dig deeper into the considerations that impact a small business' choice of financing options and equipment, we conducted in-depth follow-up interviews with nine of the 18 survey respondents who indicated that they had used financing for their energy upgrade. Below, we provide a few key findings that emerged from the interview results.

- **Energy efficiency is important, but it is one factor among many that influence energy equipment purchase decisions:** When asked about how they selected their energy-related equipment, four of eight respondents reported that they purchased the equipment based on EE or energy saving capacity of the equipment, while two respondents reported purchasing equipment based on compatibility with their business or work space. Other factors that influenced the purchase of specific energy-related

equipment include the contractor recommendation, functionality of the equipment, personal preference, and wattage of the lighting equipment.

- **Existing lender, supplier and contractor contacts are influential in introducing businesses to financing options:** Most (five of nine) respondents learned about the financing option their companies used through an existing supplier or contact (i.e., loan officer, bank, and credit union), while one learned of OBF through a contractor.
- **Lack of liquid capital is central to businesses' decision to finance energy upgrades:** When asked why they used financing instead of paying cash upfront for their upgrades, three of four in-depth interview respondents noted that they did not have cash on hand to pay for the upgrades upfront. Moreover, three of six respondents indicated that they would not have performed the energy upgrades at all if financing had not been available.
- **Financing loan conditions appear to be secondary to other considerations when choosing to finance energy upgrades:** Notably, none of the nine in-depth interview respondents reported being particular about the loan terms, interest rates, or other financing program characteristics. Instead, in-depth interview results suggest that familiarity with or having a relationship with financial institutions drives the decision to finance more than loan terms and interest rates.

Taken together, these findings generally confirm the findings of the survey, suggesting that successful financing programs need to tap into existing contract and lender relationships with small businesses, and make a clear case in support of the EE equipment option by offering cash-flow positive financing. This may prove successful in drawing more small businesses into supporting energy upgrades through EE financing, and thereby increase the uptake of EE equipment within these projects.

1.3 Key Take-Aways for the Pilot

There are a number of take-ways that are relevant to the design, implementation and evaluation of Pilot. Primarily these include:

- **The overall market for energy-related improvements in the SB market is significant** (estimated at over $1.8 billion annually), offering a solid foundation to encourage more players into the market, and increase competition among lenders to offer competitive and accessible EE financing to SB customers.
- **While many SBs have made an energy-related upgrade in the past two years (54%), they do not often use financing to support energy-related upgrades:** Currently just 4.1% of respondents reported using financing to undertake an energy-related improvement. However, a substantial portion (55%) of respondents indicated that if they had an EE financing option they would be interested to use it, which suggests that there may be a lack of awareness and access to financing for SB's who seek to improve the energy performance of their premises.
- **The Pilot could be large enough to make a discernable change in the overall energy upgrade financing market size:** We estimate that the current size of EE measure financing among California small businesses is approximately $264M per year, $137M of which is used for efficiency upgrade projects. The maximum financing envelope for the CHEEF SB Pilots is $70M per year which represents 26% of current energy upgrade financing, and 51% of current efficiency upgrade financing. If the Pilots are successful in accessing heretofore untapped efficiency upgrade financing opportunities, a resulting increase in the overall efficiency financing market should be evident.

- **There remains much untapped potential to increase uptake of EE equipment within energy upgrades:** A substantial portion of businesses reported choosing at least one EE equipment item within their energy upgrades (80% of those who completed upgrade projects). However, among the reported energy upgrade measures, we verified that only 57% were likely better than standard efficiency (and even among those many would likely not be the most efficient option available), suggesting that significant room remains for increasing the uptake of EE equipment.

- **Financing may address the key barriers to choosing EE equipment.** Interestingly, the primary barrier noted by respondents was the cost of EE equipment, followed by concerns as to whether the energy savings justify the costs. Point of sale financing or leases that can demonstrate cash-flow positive returns on EE equipment may address these barriers.

- **While lighting remains by far the most common EE improvement, SB projects that are supported by financing tend to be larger and include "deeper" saving measures** such as HVAC and pump/motor improvements than self-financed upgrades which tend to focus on low cost lighting upgrades. Moreover, small businesses are less likely to choose the EE option for these larger measures, suggesting that increased access to financing could increase the uptake of EE equipment among the non-lighting equipment types.

- **Respondents expressed a strong interest in financing EE improvements, but they also noted a number of significant barriers.** A substantial portion (55%) of businesses said that they would be interested to use financing products that can allow them to pay for EE equipment. However, among those who are not interested in financing EE in the future, over 80% of respondents expressed an aversion to taking on more debt. They were also concerned about the hassle factor or their eligibility for financing, and over 20% were not even sure where they could find financing for EE equipment.

- **Easy access to EE financing could enable more businesses to include EE in their upgrades.** If the CHEEF SB Pilots can address the cost, hassle factor, awareness and access barriers by offering financing products that do not impact businesses' access to capital for other needs, are easily available, provide cash-flow positive investments, and can be accessed through simple to complete applications they could help tap into some of the expressed (but not yet realized) interest in financing EE equipment. Moreover, increasing the prominence of EE financing in conversation between SB decision-makers and their banks and contractors/suppliers may help to increase awareness of these opportunities.

Taken together, these findings indicate that the SB market could be fertile ground for EE financing products. There is a significant volume of energy-related upgrades, which carries a notable stream of missed opportunities to include more and deeper EE improvements in these projects. Increasing the awareness of and access to EE financing among SB owners could help tap into this market opportunity.

1.4 Benchmarking Pilot Impacts

Current Energy Upgrade Market Size (Investment and Loan Volume)

Based on the average reported project costs, and portion of respondents who reported conducting energy related and efficient upgrades and using financing, we arrived at the following assessment of the Small business energy upgrade market (see table below). For the baseline period of 2015, we estimate that small businesses invested $1.8 billion in energy related upgrades and that $264M (15%) of that investment was external financed. To put this in context, total lending to small businesses throughout CA in 2015 was $5.3

billion[4]; the $264 million in energy related equipment lending therefore represents 4.7% of the total lending. *Notably, these volumes are point estimates with wide error bounds, see Chapter 4 for more details.*

Table 2. Total Small Business Upgrade Market Size

	Total	Financed	Financed Portion of Upgrade Volume
Energy Related Upgrades	$1.8B	$264M	15%
Efficiency Upgrades (projects with at least 1 EE measure)	$1.46B	$88M (based on IOU rebate participant data)	6.0%
		$137M (from market baseline data collected in this study)	9.4%

The Maximum CHEEF Pilot Lending Envelope is Much Less than the Potential Addressable Market

A low-end estimate of the addressable market for efficiency financing is in the order to $357M per year: Among all small businesses, 11% of the reported projects were of the self-financed and included no efficiency measures. Assuming that financing could help shift these upgrades into energy efficiency projects, and considering that the average energy equipment cost of these projects was $8,127, the addressable market they represent is estimated to be $357M per year. This market could likely be larger, considering the higher cost of efficiency equipment over standard equipment, and accounting for the potential that financing may help other customers install even more efficient measures than they currently do.

The maximum annual lending envelope for the CHEEF SB Pilots is $70M per year: CAEATFA reports that there is $14M in funds available for the pilot loan loss reserve funds. Considering the 2-year pilot duration and the 10:1 LLR to loans ratio, this translates into $70M per year of potential loans. Considering the relative size of these values, it is unlikely that the Pilots will be limited by the potential market size. If they are demand-limited, it would likely be attributable to barriers related to awareness, marketing and reluctance to take on debt.

Benchmarking CHEEF Pilot Impacts to the Overall Energy Upgrade Market

The baseline study provides a snapshot of the use of financing to support energy related upgrades and energy efficiency projects in California's small businesses. To assess evidence that the Pilot made an impact on the overall EE financing market, we suggest that the following hierarchy of benchmarks be applied as part of the impact evaluation:

1. **Expansion of the total amount of EE financing:** An expansion of the overall amount of EE financing among SB customers would provide the most solid evidence that the Pilots have impacted the market.

2. **Expansion of the total amount of energy-related upgrade financing:** An expansion of energy-related financing coupled with an expansion of the amount of EE-specific financing may indicate that the Pilots encouraged new financing activity.

[4]Pulled from data reference in a Small Business Administration press release: https://www.sba.gov/about-sba/sba-newsroom/press-releases-media-advisories/loan-volume-exceeds-1-billion-first-time-northern-california-fy-2015. SBIC lending in CA, loans given directly through the SBA, totaled $1 billion in 2015, indicating that another $4 billion was lent to CA small businesses through other avenues.

3. **Increased Size ($), EE measures (#) and average efficiency rating of financed EE projects, as compared to self-financed EE projects:** Assessing changes in the nature of the energy-related and efficiency projects, may reveal further financing impacts.

Assessing an increase in the overall volume of efficiency spending may not be feasible: While the Pilots may be large enough to make a discernable impact on the volume of energy upgrade and efficiency financing, this market is small compared to the overall EE upgrade market as a whole. As a result, considering the size of the overall EE upgrade market, and the associated standard error in our baseline study assessment of the market size, the Pilot loan volume may not be sufficient to support a measurable increase in the overall volume of efficiency project spending among small businesses.

2. Study Purpose and Context

2.1 California's Non-Residential Finance Programs

Currently, California's non-residential sector has a mix of ongoing and proposed finance initiatives. In addition to financing offered by the private sector, there are the Statewide Finance Pilots/programs, the (American Recovery and Reinvestment Act (ARRA)-originated local government finance programs, the Regional finance pilots, the IOUs' OBF program, and C-PACE programs. Table 3 summarizes these programs in the non-residential sector[5]. Notably, all programs serve the non-residential sector but only some specifically target and attract small businesses.

Table 3. Non-Residential Finance Programs in California

Program Administrator	Finance Program Name
Statewide Finance Pilots	
CAEATFA	On-Bill/Off-Bill Small Business Lease and Loan Pilot
CAEATFA	Non-Residential on-Bill Repayment Pilot
OBF Program	
IOUs (PG&E, SCE, SCG, SDG&E)	OBF Program
Local and Regional Finance Pilots/Programs	
IOU (SDG&E)	Contractor Marketing
Marin Energy Authority	On-Bill Repayment for Multifamily and Small Business
BayREN	Commercial PACE
BayREN	Pay as You Save (City of Windsor)
SoCalREN	Non-Residential PACE
PACE Program	
Local/City Government	mPower
Local/City Government	CaliforniaFirst
Local/City Government	Figtree
Local/City Government	Green Finance San Francisco
Local/City Government	Los Angeles County PACE
Local/City Government	Sonoma County Energy Independence Program (SCEIP)

[5] Note that this is the original classification based on the Program Implementation Plans (PIPs) and information provided by the CPUC.

Program Administrator	Finance Program Name
Local/City Government	Ygrene/PACE

Small Business-Focused Statewide Finance Pilots

The market baseline is established for CAEATFA's (1) On- and (2) Off-Bill Small Business Lease Pilots and its (3) Small Business Loan Pilot, which have been combined into one Pilot. This baseline may also support similar successor finance programs. CAEATFA's Small Business Lease Pilots feature credit enhancements in the form of loss reserve funds to limit a participating lease provider's loss in the event of a charge-off or a defaulted lease. Customers of the IOUs are given the option of repaying via a charge on their utility bill (On-Bill option) or via standard payment (Off-Bill option). The Small Business Loan Pilot includes a loan loss reserve with On-Bill repayment. These are the first three CHEEF pilots that will target the non-residential market, and collectively they account for 61% of all rate payer funds allocated to the non-residential CHEEF pilots.[6]

2.2 California's Small Business Energy Efficiency Financing Market

A key concern in this study is ensuring that the definition of "small business" is aligned with the Pilot's qualifying criteria. However, there are a few areas where perfect alignment is not possible. In this section, we describe the definition of "small business" established by the Pilot, the methodological challenges associated with their definition, and ways in which we are augmenting this definition to facilitate data collection to be consistent with other relevant research efforts in California as well as to be as consistent as possible with the Pilot's definition.

What Qualifies as a "Small" Business?

To determine which companies qualify as small businesses, the Pilot adopted the criteria established by the federal Small Business Administration (SBA). The SBA uses size standards based on either the number of employees a company has had over the past 12 months or average annual receipts over the past three years. In the case of the former, the cut-off for most manufacturing and mining industries is 500 employees; in the case of the latter, the cut-off for most non-manufacturing industries is 7.5 million dollars in average annual receipts.[7] This may cause some incongruity between the Pilot eligibility and the CA IOU small business account definition, which dictates eligibility to small business efficiency incentive programs, and are based on annual energy consumption (kWh or therms) within the business premises seeking support for upgrades.

The 2012-2013 California Commercial Saturation Study (CSS) is the most recent study in CA that involved a Statewide effort to define and research small businesses' energy usage and propensity for energy efficiency upgrades. Aligning this study with the CSS to the extent possible is beneficial to planners at all levels. In that CSS study, a small business is defined as having total annual energy use of less than 300,000 kWh (or <50,000 therms for gas-only customers). Importantly, most IOUs apply a threshold of 300,000 kWh as the

[6] Decision 13-09-044, September 19, 2013

[7] For more detailed information about the SBA standards, visit https://www.sba.gov/contracting/getting-started-contractor. Either number of employees or annual receipts is used, but not both, for each business type.

upper limit of annual consumption to qualify as a small business. Similarly, Southern California Gas Company (SoCalGas) applies a threshold of 50,000 therms to define its small business gas customers.

This study successfully used both the usage threshold and the SBA standards to define small businesses. The usage threshold was used in sampling for the telephone survey and survey results showed that all respondents also met the SBA definition of small businesses. In addition, for the purpose of this study, small businesses are further defined by being an IOU customer that engages in eligible business activities. For example, there are a number of business segments that are not eligible for the Pilot including transportation, communications, and utilities (TCU), mining, streetlights, municipalities, colleges and universities, schools, hospitals, and common areas of multifamily buildings.

We estimate that the target population size for the Pilot is 779,451 customers, with the majority in the retail and office sectors. The process for defining small businesses is described in more detail in the following Methodology section (Section 3).

Types of Lending Available to Small Businesses

Through secondary research and interviews with Financial Institutions that we conducted to help scope this baseline study, we identified six primary types of financing that could be used by non-residential customers to support EE improvements in CA:

- Commercial PACE;
- Equipment Financing and Leasing;
- Term Loans through banks and credit unions;
- Revolving lines of credit with banks and credit unions;
- SBDC and Community Development Financial Institutions (CDFI) loans;
- IOU OBF programs; and
- Specialty Financing for Energy Efficiency

For each financing type, we identified lenders who were known to actively offer financing for EE projects in CA. This was accomplished through secondary research of information in publicly available reports and program/lender websites. Notably, while all options are available to the non-residential market, our study results show that small businesses are only using some of these options so far.

Table 4. Type of Financing Available to Non-Residential Customers in CA

Financing Type	Example Lenders[8]	Terms	Target Market
Commercial PACE Lenders	• Samas Capital • MPower • Sonoma County • Clean Fund • Ygrene	• Interest rates: 6-7% • Underwriting: based on the building itself	• All non-res, Large Commercial and Industrial (LCI), and SB
Equipment Financing and Lease Companies	• Balboa Capital • Acentium • TIP • C&I Finance • De Lage Landen • Pacific National • Trigen • CoBank	Financial Institutions (FIs) are comfortable financing EE measures; credit risk, EE collateral, lack of secondary market support are not barriers	Small ticket mostly finance lighting (80%) & remainder are mostly HVAC; financing is mainly driven by contractors
Commercial Banks and Credit Unions offering term loans	• CoBank • Union Bank • RadoBank • Pacific National Bank	Unknown	Serve all types of non-residential customers
SBDC and CDFI loans	• Valley Small Business Development Corp • Fresno CDFI • Rural Community Assistance Corporation (RCAC)	Unknown	Serve customers who do not qualify for SBA loans and they usually have more pressing financing needs than EE
IOUs delivering OBF	• PG&E, SDG&E, SoCalGas, SCE	• Interest rates: 0% • $5-100k, max 5 years • $5-250k, max 10 years	• SB • LCI
Specialty Lenders	• BluePath Finance Solutions • Joule Assets • SparkFund • Trigen • Low Income Investment Fund	Mainly for projects over $500k+ but new entrants are allowing $250k+ projects	• Support energy service company (ESCO)-type initiatives • LCI • Likely not targeting SBs as of yet

[8] Some lenders are active in multiple categories of Non-Residential Financing, and in those cases they were placed in their primary area of activity.

2.3 Energy-Efficient Measure Definitions Used in this Study

In order to assess the incidence, quantity, and depth of EE upgrades among SBs, the Evaluation Team established a definition of EE, or EE measures. For many measures, the CSS determined if upgrades were EE through a telephone survey and then completed on-site visits to a sub-sample of the businesses. Due to budget constraints, we did not conduct on-site data collection for all verification efforts and instead mostly relied upon what could be gathered via self-report. We developed, tested, and fielded questions that would allow us to reasonably determine if upgrades were EE. We list some ways in which we asked for efficiency levels for various types of measures in Table 5.[9] Notably, these definitions of EE were further supported by web-based verification information including photographs of equipment and manufacturer information.

The definition of energy efficiency in this study does not perfectly align with the IOU's definition for what qualifies as energy efficient for their resource programs. For example, the IOUs follow the minimum Title 24 code values for non-residential lighting which are determined by lighting power density, not by bulb type. This study was not able to collect all of the information required to determine whether measures were above Title 24 code. Instead, this study applied a looser definition of energy efficiency that aligned with what customers were able to provide via telephone and internet. As such, we recognize that the energy efficient equipment estimates in this study are biased upward in comparison to what the IOUs would define as energy efficient for their resource programs.

[9] Note that while Table 5 does not provide an exhaustive list of the measures we asked about in the telephone and follow-up surveys, we hope to demonstrate the kinds of information we collected to help us determine the efficiency status of the energy measures that SBs claimed to have installed in the telephone survey.

Table 5. Energy Efficiency Determinants by Measure

Measure	Energy Efficiency Status Questions
Lighting	■ Bulb type (i.e. CFL, LED, T5 or T8, efficient halogens) ■ ENERGY STAR® rated? ■ Installed occupancy sensors? ■ Installed lighting controls such as timers? ■ Received rebate or free lighting from IOU?[a] ■ Paid more for lighting equipment?[b]
Cooling	■ What is the tonnage and SEER or EER? ■ ENERGY STAR® rated? ■ Received rebate from IOU?[a] ■ Paid more for cooling equipment?[b]
Heating	■ AFUE rating ■ ENERGY STAR® rated? ■ Received rebate from IOU?[a] ■ Paid more for heating equipment?[b]
Refrigeration	■ ENERGY STAR® rated? ■ Received rebate from IOU?[a] ■ Paid more for refrigeration equipment?[b]
Motors	■ ENERGY STAR® rated? ■ Received rebate from IOU?[a] ■ Paid more for motors?[b]
VSDs and VFDs	■ Installed VSDs or VFDs?
EMS	■ Installed EMS?

Notes:
[a] The Evaluation Team assumes that the SBs' measure upgrades are EE if they received rebates or free lighting measures for their upgrades.
[b] The Evaluation Team assumes that the SBs' measure upgrades are EE if they paid more for their energy upgrades as EE equipment are most often sold at a premium price compared to standard equipment.

In addition to the measures listed in Table 5, we also asked SBs for other measures they upgraded or installed in the last two years and considered installations of insulation, cool roofing, and window film, as EE by default.

2.4 Purpose of this Study

The goal of this study was to: (1) establish baselines for a number of key metrics related to EE financing for SBs; and (2) Characterize the market to help support program design and implementation. The metrics were developed based on the Pilot's design strategy and where it may have an impact on the marketplace. Key market characteristics (or metrics) that could change due to the Pilot are:

- The proportion of SBs doing energy-related or EE upgrades
- The proportion of upgrades that are financed by SBs
- The proportion of SBs using financing in IOU resource-acquisition programs
- Energy-related loan volume among SBs
- The average size and depth of upgrades among SBs
- The types of financing that SBs use for upgrades
- SB awareness of financing options for energy-related upgrades
- SB perceived barriers to upgrades

- SB perceived barriers to financing energy efficiency

Detailed metrics and baseline estimates are summarized in Section 6.

Market versus Program Metrics

Notably, this study is aimed at capturing broader market baseline metrics for the Small Business Pilot with the goal of measuring market transformation over time due to the Pilot or other financing efforts. The CPUC released draft resolution E-4900 in Q4 2017 that "establishes metrics to assess the performance of the energy efficiency finance pilots and their long-term viability". The evaluation metrics in that resolution were established to evaluate program-specific performance after two years of implementation, such as the number of loans issued and the number of financial institutions that offer the Pilot. Those metrics will help assess Pilot performance against one of its long-term goals: to "develop new, scalable, and leveraged financing products to overcome the first cost of energy efficiency upgrades and induce customers to participate in projects that produce deeper energy savings than would be achieved utilizing mostly traditional program approaches such as audits, rebates, and access to consumption data". However, a secondary goal of the finance Pilot is to transform the broader energy efficiency financing marketplace and this study provides the market-based metrics to measure that transformation over time.

3. Methodology

3.1 Quantitative Survey

3.1.1 Sampling and Precision

Defining the SB Pilot Target Market and Study Population Frame

A key concern in this study is ensuring that the definition of "small business" is aligned with the Pilot's qualifying criteria. To determine which companies qualify as small businesses, the Pilot adopted the criteria established by the federal Small Business Administration (SBA). The SBA uses size standards based on either the number of employees a company has had over the past 12 months or average annual receipts over the past three years. In the case of the former, the cut-off for most manufacturing and mining industries is 500 employees; in the case of the latter, the cut-off for most non-manufacturing industries is 7.5 million dollars in average annual receipts.[10]

We did not find a sample source that would allow us to use the specific SBA criteria while also allowing us to consider usage as an important criterion. IOUs have traditionally used annual kWh or therm usage as a way to identify small businesses. Since this is an important variable for the IOUs, we opted to use IOU customer information databases for defining the sample, while committing to checking the usage-based size categories with the SBA criteria after surveying our sample.

Another population- and sample-definition factor that we took into consideration is the 2012-2013 CSS. It is the most recent study in CA that involved a Statewide effort to define and research small businesses' energy usage and propensity for energy efficiency upgrades. Aligning our study with theirs to the extent possible is beneficial to planners at all levels. In that CSS study, a small business is defined as having total annual energy use of less than 300,000 kWh (or <50,000 therms for gas-only customers). Importantly, this 300,000 kWh threshold is also recognized by most of the IOUs as the criterion for small business energy use, and the 50,000 therms criterion is recognized by the SoCalGas. Therefore, we began our sampling process by eliminating small businesses with total annual energy use of 300,000 kWh or 50,000 therms (for gas-only customers) or more, based on the IOUs' 2014 usage data. We further refined the sampling frame that was filtered on this criterion by removing business types, based on North American Industry Classification System (NAICS) codes, that do not align with CAEATFA's targeting, as well as on businesses-premises that are not good candidates for other reasons, e.g. street lights and billboards.

Throughout the survey process, we included questions for employee levels and revenue to determine if the fuel usage definition was potentially including customers that would not qualify as a small business under the SBA definition. We found that this was not an issue. All survey respondents met both the SBA definition and the IOU definition of a small business.

The sample source for this study was the 2014-15 IOU Customer Information System (CIS) data managed by Itron Inc. The CIS database leverages IOU customer data and has electric usage, NAICS codes, and contact information on all customers within the IOU territories.

[10] For more detailed information about the SBA standards, visit https://www.sba.gov/contracting/getting-started-contractor. Either number of employees or annual receipts is used, but not both, for each business type.

Sampling Approach

We began with a non-residential population of 1,398,022 customers. Customers are marked as small businesses in the CIS if annual electric usage is < 300,000 kWh or 50,000 therms for gas-only customers. In addition, we further trimmed the population to target those that align with the Pilot's target market. The Pilot is not intended for transportation, communications, and utilities (TCU), mining, streetlights, municipalities, colleges and universities, schools, hospitals, and common areas of multifamily buildings as those targets either have other financing options available to them or other CHEEF pilots plan to target them. After making these and other adjustments, as shown in Table 6 below, our sampling frame included all customers meeting the selection criteria.

Table 6. Sampling Frame Exclusions

Reason for Exclusion	n of Excluded Customers	% of Total CIS Data Set Remaining After Exclusion
2014 kWh < 1,000[a]	233,539	70.15%
Inactive account	123,302	91.18%
TCU	88,880	63.69%
2014 kWh > 300,000	60,478	86.85%
Res Common	50,735	57.61%
Street lights	14,167	61.93%
Mining	10,498	62.94%
School	8,054	61.28%
2014 therm > 50,000[b]	1,379	70.05%
College or University	1,058	61.85%
Hospital	546	61.24%

Notes:
[a] We removed customers with <1,000 kWh in 2014, since they are unlikely to finance upgrades to reduce their energy use, given their low levels of consumption.
[b] The 50,000 annual therms cutoff is based on the SoCalGas definition of small and medium businesses. We included gas-only customers in the sample because it is possible that these customers are non-IOU electric customers and potentially interested in EE financing. Screening questions in the survey will ensure that we exclude inappropriate customers.

We used a stratified random sample approach to the quantitative survey based on both business type and energy use, which are common stratification variables for non-residential studies. Drawing boundaries based on business type and average kWh for three strata produced sensible strata (see Table 7). We did not pursue a standard Dalenius-Hodges and Neyman allocation approach to achieve optimum efficiency because the only continuous variable we could have applied was usage, and that variable is not likely to be correlated with the metrics of central interest to this study. We sampled proportionately to the three strata with the idea that this provided maximum flexibility in adjusting strata if needed. In addition, a proportional approach would be the second best in terms of sample efficiency if it turned out that usage within small businesses was related to study metrics. Finally, including business type in the stratification scheme would make the results more useful than a strict usage definition of stratum boundaries.

We completed 443 surveys with small businesses. As shown in Table 7 below, the distribution of business sectors from the initial population is similar to the survey sample distribution as defined in the CIS system.

Table 7. Distribution of Business Types among Small Businesses (based on NAICS codes in CIS)

Stratum[a]	Business Type	n (All Customers)[b]	Average kWh	n in Stratum	% in Stratum	% in sample
1 (Food, Liquor, & Non-Office Health Care)	Food/Liquor	20,199	94,615	90,028	11%	17%
	Hotel	5,505	84,469			
	Health Care – Care	2,043	83,781			
	Restaurant	62,281	82,087			
2 (Ag - Industrial)	Industrial	31,270	50,441	156,573	19%	26%
	Agriculture	92,908	47,481			
	Warehouse	32,395	40,122			
3 (Office, Retail, Misc.)	Retail	66,831	38,381	419,537	52%	58%
	Office	159, 969	32.520			
	Health Care – Med Office	35,751	27,460			
	Misc	156,986	27,371			
Classified Total		666,138				
	Undefined	129,633	7,829	139,248	17%	0%
	Unclassified	9,615				
Unclassified Total		**139,248**				
Grand Total		**805,836**				443

Notes:
[a.] For purposes of discussion in the findings section of this report, we assigned labels to each business stratum, where Stratum 1 is "Food, Liquor, & Non-Office Health Care", Stratum 2 is "Ag, Industrial", and Stratum 3 is "Office, Retail, Misc.".
[b.] Annual kWh consumption data was not available for gas-only customers. The average and total kWh numbers in this table only reflect the usage of electric customers.

The telephone survey had a response rate of 6.80% and a cooperation rate of 17.09%. The sampling strategy was also intended to distribute businesses proportionately across fuel types for customers in terms of gas-only, electric-only, and both gas and electric. Table 8 summarizes customer population proportions on fuel type from the IOUs (gas-only, electric-only, or both) and the number of completes in the survey.

Table 8. Distribution of IOU Account Type of Business Types

	Gas Only		Electric Only		Both Gas and Electric		Total	
	n	%	n	%	n	Percent	n	%
Sampling Frame Total	41,693	5.2%	594,614	73.8%	169,079	21.0%	805,386	100.0%
Survey Completes	22	5.0%	301	67.9%	120	27.1%	443	100%

Table 7 shows that there were 139,248, or 17%, of businesses that did not have a NAICS code in the CIS data, and therefore could not be classified at the sampling frame level. After we surveyed a sample of customers from each of the three strata, we were able to ascertain the correct business type for everyone in the sample. Those falling into the Undefined or Unclassified groups were allocated to their correct business type categories and therefore to the correct strata. Then we used the proportions of the sample that were taken from the two unclassifiable business groups and put into the correct business type, to adjust the population proportions. This method assumes that the cases previously unclassified were not a biased representation of those business types in the population. We also took the step of re-classifying businesses that had originally been

classifiable, but were incorrectly classified. Both of these steps resulted in an adjusted population distribution, which is shown in Table 9 below.

Table 9 shows the initial population distribution over the three strata, the adjusted population, and final sample distributions. There are some sample deviations from the population percentages, which caused us to explore the need for weighting. We analyzed key metric data both with and without weights and found less than one percentage point difference. We also examined the correlations between the weights and the metrics, and they were weak, at about 0.1. Given the small size of the correlation and the small difference in metrics between using and not using the weights, we opted not to weight the data.

Table 9. Adjusted Distributions of Population and Surveyed Sample

Stratum	Business Type	Initial Population Distribution (805,836)	Adjusted Population Distribution (779,451)	Final Sample Distribution (n=443)
1 (Food, Liquor, & Non-Office Health Care)	Food/Liquor	11%	11%	17%
	Hotel			
	Health Care – Care			
	Restaurant			
2 (Ag-Industrial)	Industrial	19%	21%	26%
	Agriculture			
	Warehouse			
3 (Office, Retail, Misc.)	Retail	52%	67%	58%
	Office			
	Health Care – Med Office			
	Misc			
Unclassified		17%	0%	0%

Prior to the survey, the CIS data showed that there were potentially 805,836 small businesses in IOU territories that would likely qualify for the Pilots solely based on the business type classifications in the database. Based on the survey results (see survey disposition report below in Table 10), 3.6% of the total businesses we contacted for the survey did not qualify for the survey, and thus likely outside of the Pilots target market, due to their business type. For example, a business's NAICs code in the CIS data classified a customer as "office" but the survey found that the business was operating in a government-owned facility. As such, we adjusted the target population for the Pilot by 3.6% and estimate that the true market size for the Pilot is 779,451 customers with the majority in the retail and office sectors.

Table 10. Quantitative Survey Dispositions

Disposition	n	%
(No result code)	4,136	27.58%
Initial refusal	1,654	11.03%
Disconnected phone	1,601	10.67%
Answering machine	1,438	9.59%
Not Available	1,077	7.18%
No answer	781	5.21%
Not Available	536	3.57%
Gatekeeper refusal	514	3.43%
Customer said wrong number	487	3.25%
Incorrect business type	**540**	**3.60%**
Complete	443	2.95%
Gatekeeper callback	401	2.67%
Non-specific callback/secretary/NTG	342	2.28%
Language problems	263	1.75%
Respondent scheduled appointment	178	1.19%
Callback to complete	169	1.13%
Mid-interview terminate - Do not callback	119	0.79%
Computer tone	99	0.66%
Privacy line/Number blocked	87	0.58%
Busy	44	0.29%
Added to the DNC list	36	0.24%
Zero/dk/ref number of buildings at location	23	0.15%
Hard refusal - Do not call	19	0.13%
Cell Phone - Refused to do survey because using a cell phone	6	0.04%
Customer indicated called already	3	0.02%
Cell phone callback	2	0.01%
Enter a substitute phone number	1	0.01%
Total	**14,999**	**100.00%**

3.1.2 Key Metric Analysis & Precision

Several factors went into the calculation of the precision of our estimates because some metrics were composed of two or three components. Each component involves its own estimate and standard error, and therefore its own precision calculation. In addition, two study components came with adjustment factors: EE status and loan amounts. Therefore, for those two components, an additional precision level was incorporated into the overall relative precision results. Each component of the final metric estimates can be considered independent of the others. Therefore, the standard propagation of standard errors and precisions, in quadrature, was appropriate. For the estimates involving only proportions, Taylor (1982) gives:

$$\delta q = \sqrt{(\delta x)^2 + (\delta z)^2}$$

Where:

δq=overall uncertainty

δx & δz=component uncertainties

For metrics involving mixed metric types, such as incidence rates and mean project costs, and adjustment factors:

$$\frac{\delta q}{|q|} = \sqrt{\left(\frac{\delta x}{x}\right)^2 + \left(\frac{\delta z}{z}\right)^2}$$

The achieved precisions are reported with the results. Some metrics, including adjusted ones are reported here with 80% confidence. The usual 90% confidence was not a realistic goal based on the sample sizes and adjustment factors. The confidence levels appropriate to each result is shown in the results tables.

3.2 In-Depth Interviews

The telephone survey identified 18 small businesses that used financing for an energy-related upgrade in the last two years (we discuss this in more detail in Section 4). We attempted in-depth interviews with all 18 businesses and ultimately completed interviews with nine of them. These in-depth interviews provide important information about the types of upgrades being financed, details about the financing (rates, loan/lease terms, underwriting criteria, etc.), as well as customer motivations and experiences with the process. These interviews also included a web verification component to verify the EE status of the upgrades respondents reported (described in Section 3.3). All interviews were audio-recorded and transcribed for subsequent analysis. Respondents received $100 in appreciation for their time.

We also used the in-depth interviews to verify the accuracy of the quantitative survey-based estimates of project costs and loan amounts. There were 18 cases that could be used as the basis for an adjustment factor for loan amounts. In that process, we were able to probe more deeply into the project and what part of it was financed, what energy-related projects were financed, etc. This process allowed us to calculate an adjustment factor for the loan amounts and project costs that came from the quantitative survey.

3.3 Energy-Related Project Verification

Our telephone survey asked customers about whether they had done energy-related upgrades, and if so, asked further questions to determine if the measures were energy efficient. Thus, our plan was to take subsamples of businesses who did energy-related upgrades to further verify the efficiency status of the equipment. Verification efforts involved a mix of in-depth interviews, web verification and some on-site visits. This data collection were planned to provide separate adjustment factors for the estimates of self-reported EE and non-EE installations.

We calculated that we would need about 49 follow-ups for self-reported EE installations, and 43 for non-EE, to achieve 90/10 confidence and precision. As we implemented these verification efforts, the response rate was lacking despite multiple efforts and incentive levels. Based on the measure, web and on-site verification efforts collected photographic evidence of equipment, including nameplates if possible, in addition to product information (i.e., equipment brand, model name or number, ENERGY STAR® rating, etc.). In the end, we were able to verify the EE status from 31 customers who installed any energy-*related* measures.

3.4 Adjustment Factors

There are two adjustment factors in this study, one for the percent of SBs who included EE measures in their upgrade and one for project costs/loan amounts. The most efficient way to use both the larger quantitative survey results and the verification-related follow-ups, was to use a ratio-estimator approach. Specifically, based on the verification samples, we calculated a ratio of verified to unverified metrics. We then applied that ratio to the larger survey-based estimate to produce an adjusted estimate of the metrics (EE rates and loan amounts). We used the approach described by Levy & Lemeshow (2008):

$$r = \frac{\bar{y}}{\bar{x}}$$

And

$$\widehat{SE}(r) = \left(\frac{r}{\sqrt{n}}\right)\left(V_x^2 + V_y^2 - 2\rho_{xy}\hat{V}_x\hat{V}_y\right)^{1/2}\sqrt{\frac{N-n}{N-1}}$$

Where:

$$\hat{V}_x^2 = \left(\frac{N-1}{N}\right)\left(\frac{s_x^2}{\bar{x}^2}\right)$$

And

$$\hat{V}_y^2 = \left(\frac{N-1}{N}\right)\left(\frac{s_y^2}{\bar{y}^2}\right)$$

And

$$\hat{\rho}_{xy} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{(n-1)s_x s_y}$$

Where:

r=ratio

$\bar{y}$=mean of verified metric

$\bar{x}$=mean of unverified metric

n=sample size

N=population size

$\widehat{SE}(r)$=standard error of the ratio

V_x^2=coefficient of variation for x

V_y^2=coefficient of variation for y

ρ_{xy}=correlation between x and y

s_x^2=sample variance of x

s_y^2=sample variance of y

3.5 Analysis of Response Bias in Verification Sample

Table 11 indicates that the measure verification sample of 31 is over-represented on some characteristics, and under-represented in others. These differences could be the source of bias in project size, although there are 13 variables where the verification sample is very similar to the larger sample of completed surveys. The verification sample seems to have disproportionately more lighting and refrigeration installations as part of their upgrades. The verification survey is under-represented in the area of roof replacements because none were contacted for verification. This was because it was not systematically asked—they came into the sample via respondent indications of "Other" installations, as did window replacements. VSDs, insulation, and EMSs were not contacted for EE verification because they are inherently efficient. For all other measures, the samples are quite similar.

Table 11. Possible Sources of Bias in the Verification Sample

Variables Where Verification Sample is:		
Similar to larger surveyed sample & sufficient n to analyze	**Over-Represented**	**Under-Represented**
Measures Installed in Upgrade 1. Cooling measure installed 2. Heating measure installed 3. Motors installed 4. VSDs installed 5. EMS installed 6. Insulation installed 7. Windows installed 8. Any self-reported EE installations 9. Any self-reported EE excluding solar Business/Building Characteristics 10. Building ownership status 11. Number of locations 12. Number of employees overall 13. IOU territory	Measures Installed in Upgrade 1. Lighting installations 55% v 33% 2. Refrigeration installations 36% v 9% Business/Building Characteristics 3. Pays gas bill 61% v 38% 4. 10-49 employees at location 32% v 22% 5. Oldest buildings—30+ years 74% v 56% 6. Heated by gas 55% v 40% 7. Has gas water heater 52% v 37%	Measures Installed in Upgrade 1. Roof replacements 0 v 10% Business/Building Characteristics 2. Health care clinics 3. Medical offices 4. Warehouses 5. Barriers to EE 42% v 54% 6. Barriers to financing 29% v 40% 7. Heated by electricity 19% v 40%

In the analysis of business type, the distribution of sample over business types is thin enough that comparisons are difficult. Table 11 implies that the verification sample is under-represented in health care clinics, medical offices, and warehouses. However, it would be overstating the situation to say that these business types were under-represented. They appear in the table only because there are none of those types in the verification sample. However, there are very few in the larger sample as well, so it is incorrect to say they are actually under-represented in the verification sample.

The areas where the verification sample is under-represented is in their opinions that they have barriers to installing EE equipment, and to financing. In other words, the verification sample respondents tend to be more likely to install EE (fewer barriers) and to consider financing accessible.

There is some difference between the verification and overall survey samples in the use of gas versus electricity for heating space and water. The verification sample is more likely to heat both space and water with gas, and correspondingly less likely to heat with electricity.

Finally, the verification sample is more likely to contain businesses with building over 30 years old, and more likely to have between 10 and 49 employees.

The variable most likely to yield differential reports of EE are the measure variables. I.e., it seems more likely that rates of EE reports might vary by measures installed than any other business or project characteristic. We therefore calculated the number of respondents who had verified EE installations as a percent of those installing each measure type included in the verification sample. The result of that analysis was that the weighted average rate of verified EE over measure types was 16.0%. The lighting and refrigeration measure types were the ones that were over-represented in the verification sample, so they are of most interest in an analysis to investigate possible bias in EE reporting. The EE verification among lighting installers was 14.7% (a little lower than average) and among refrigeration installers, 22.4% (higher than average). Thus, one might contribute to a downward bias in the ratio of verified EE to self-reported EE, and one would contribute to a possible upward bias. The upward bias of refrigeration is a little higher than the downward bias of lighting, but there are many more lighting upgrades than refrigeration ones. Thus, there is no clear reason to suspect that the EE adjustment factor contributed a strong bias to the estimate of EE projects. Other Program-Specific Data Sources

We coordinated with the CPUC non-residential impact team (Itron) to place a self-report finance battery into ongoing impact evaluations for non-residential customers in the 2013-2014 period, which pre-dates the roll-out of the Statewide Pilots. This battery was excluded from 2015 data collection efforts. However, data from 2013-14 will support making comparisons between data gathered prior to and following the introduction of the Pilots. Of specific interest is the extent to which project size and scope varies as a function of time (i.e., before/after the introduction of the Pilots) and also the role that OBF plays in the scope of upgrades undertaken.

3.6 Study Limitations

The initial estimates of what was an EE measure, and what the costs of that and non-EE measures were, came from a quantitative survey, and was self-reported. Since experience has taught us that self-reports of what is and isn't EE are unreliable, we also completed in-depth interviews, supplemented by photographs, when feasible, to verify the EE status of the projects. Adjustments were made using ratios of the IDI results to the initial survey results, including uncertainties around those adjustments. However, this type of adjustment can't be considered comparable to the accuracy of a site visit by experienced technicians or engineers. This means that there is likely to be an additional element of uncertainty that we could not measure within the budget allocated to this study. This should be taken into account when using the results presented in this report, and suggests that the next study be funded to include site visits.

The number and percent of customers reporting completing energy-related upgrade projects is not small (43.6%–adjusted), but the percent of those using external financing was small. Thus, it took considerable screening efforts to find them. This has implications for future study designs, but for this study, the small numbers, in addition to the necessary adjustment factors to deal with self-report inaccuracies in project costs, led us to use an 80% confidence level, and within that confidence level, precision estimates were quite far

from the industry standard of 10%. While these uncertainties are clearly shown in the results tables, it bears reminding the reader here of this issue, so that the results concerning project costs should be used with caution. The estimates may be useful for getting a general idea of what the potential market is for the finance market in connection with efficient upgrades, the confidence interval around the estimate is wide, reflecting a wide range of market potential possibilities.

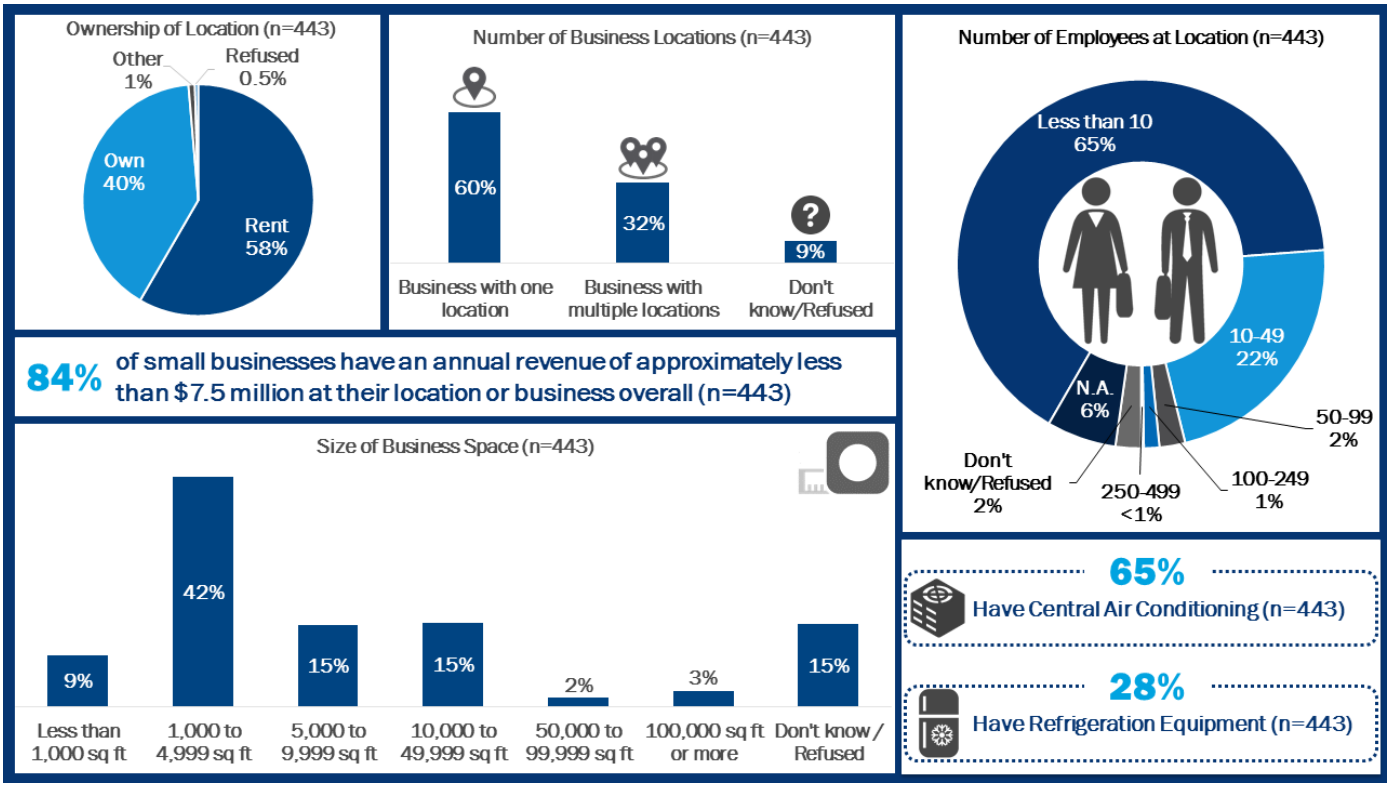
The self-reported incidence of energy-related and energy-efficient projects are reported with industry-standard confidence and precision. However, the adjusted incidence of EE projects had to be reported with less confidence, due to the adjustment factor that had a larger standard error than the rest of the survey. However, the reported confidence and precision do take into account both sources of information that yield the final, adjusted estimate of EE incidence.

4. Market Baseline Findings

4.1 Characterization of California Small Businesses

Over half (58%) of small businesses in this study are renters and operate from a single location (60%) as shown in Figure 1. Most (81%) occupy business spaces that measure less than 50,000 square feet and have under 50 employees (87%). Notably, all responding businesses reported having under 500 employees and (84%) reported have an annual revenue below 7.5 million dollars, which satisfies the federal Small Business Administration's (SBA) criteria for what qualifies as small business[11].

Figure 1. Small Business Firmographic Snapshot

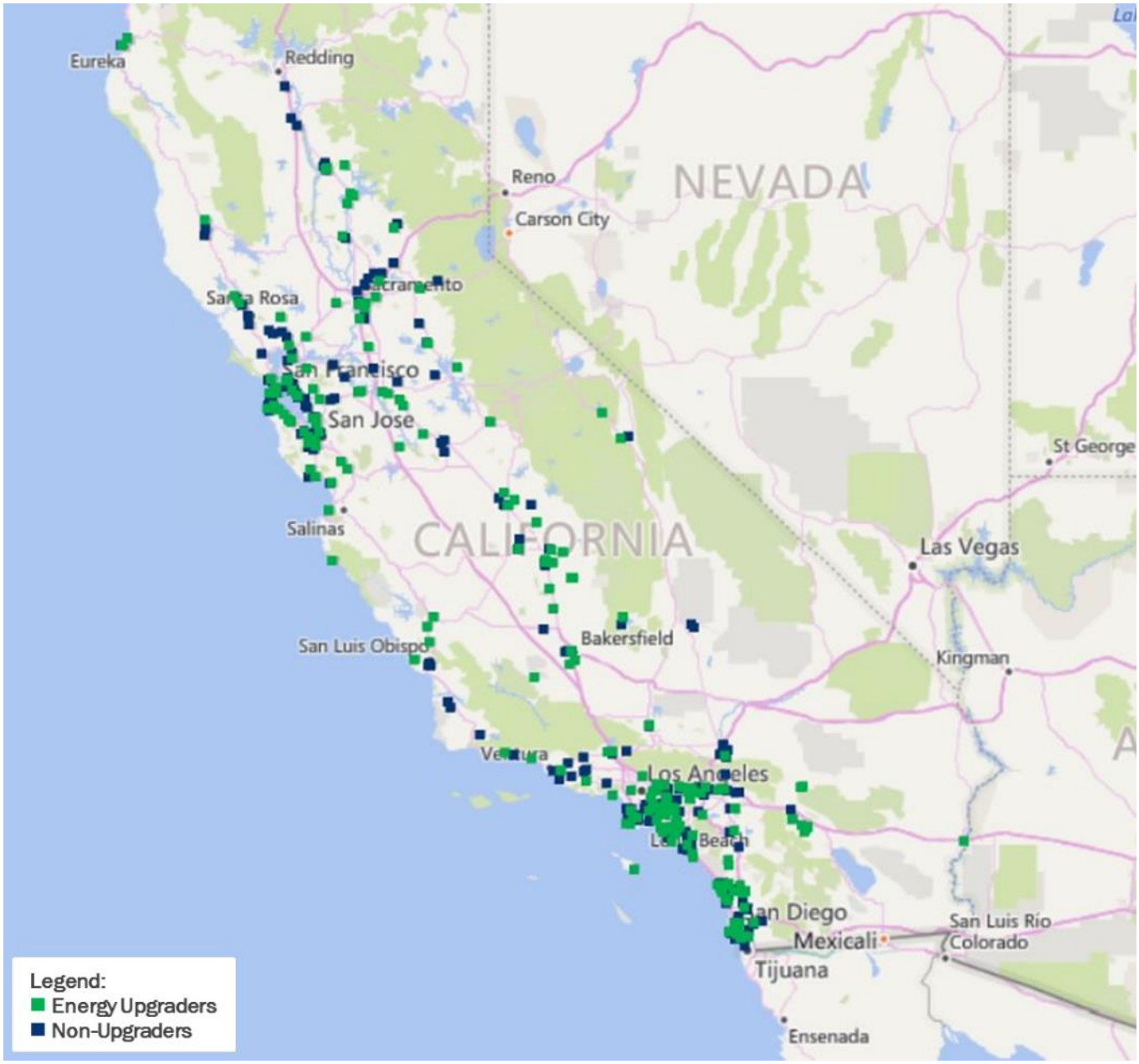


As shown in Figure 2, most of the responding businesses are located in major metropolitan areas such as Los Angeles, San Diego, Sacramento, and the San Francisco Bay Area. This is true for both businesses that did at least one energy related upgrade, as well as those who did not do any upgrades.

[11] The SBA uses size standards based on either the number of employees a company has had over the past 12 months or average annual receipts over the past three years. In the case of the former, the cut-off for most manufacturing and mining industries is 500 employees; in the case of the latter, the cut-off for most non-manufacturing industries is 7.5 million dollars in average annual receipts.

For more detailed information about the SBA standards, visit https://www.sba.gov/contracting/getting-started-contractor. Either number of employees or annual receipts is used, but not both, for each business type.

Figure 2. Location of Energy Upgraders and Non-Upgraders (n=443)



4.2 California's Small Business Energy Equipment Upgrade Market

Survey results show that many small businesses frequently upgrade energy-using equipment. Approximately half (53.5%) of SBs upgraded energy-related equipment in the past two years, and of these 80% included at least one energy efficient measure (representing 42.7% of all Small Businesses)[12].

Table 12. Small Businesses with Energy Upgrades (n=443)

Metric	Estimate	Lower Bound	Upper Bound
Completed Energy-Related Upgrades (Self-Report, 90% Confidence)	53.5%	49.6%	57.4%
Completed Energy-Efficient Upgrades (Adjusted, 80% Confidence)	42.7%	39.2%	46.3%

Prevalence of energy efficient measures among energy upgrade projects

On average, small businesses installed 1.76 energy related measure types. This was skewed toward larger businesses (those with greater than 10 employees) who reported to upgrading 2.19 energy related measure types on average, compared to 1.54 for businesses with fewer than 10 employees. Interestingly, there was not a strong skewness of the results toward businesses that owned their premises compared to those who rent, which reflects the nature of commercial leases that often require the renter to install and upgrade their own equipment and interiors. Among the 160 small businesses that claimed to have installed at least one energy efficient measure, they reported to upgrade on average about 1.59 energy efficient measure types.

Table 13. Number of Measure Types per Business Reporting Performing an Energy Upgrade (90% Confidence)

Metric	Reported Energy Upgrade Measure Types (all SB)	Reported Energy Upgrade Measure Types (<10 empl.)	Reported Energy Upgrade Measure Types (>10 empl.)	Verified or Likely EE Measure Types
Mean Number of Measure Types	1.76	1.54	2.19*	1.59
n	237	149[a]	80[a]	160
Standard Error	0.077	0.072	0.170	0.08
Relative Precision				8.83%

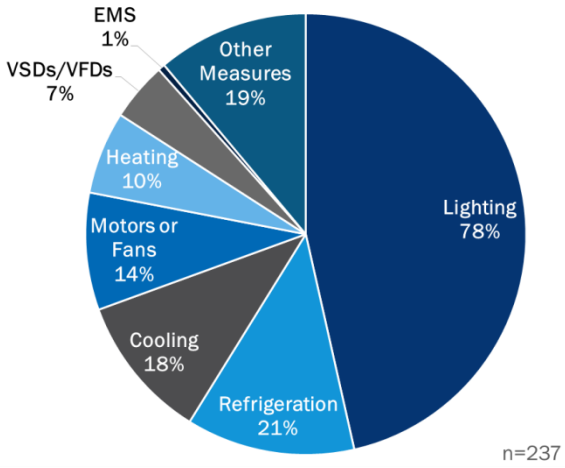
Note: [a] The average excludes eight SBs that refused or did not know the number of employees in their company.
*Difference in averages based on employee size is statistically significant at 90/10.

Recognizing that it is complicated for most business owners to identify what may qualify as an energy efficient measure, our study sought to define and verify the portion of the upgrades that were truly more efficient than standard code technology. To do this we probed for respondents who had received energy efficiency incentives through the IOU resource acquisition programs, and conducted additional online and on-site verification.

[12] A ratio estimator was calculated and applied to the self-reported number. The ratio of verified EE to self-reported EE was 1.19. In other words, the net effect of the reporting errors was a bit of under-reporting of EE installations. Applying that ratio to the self-reported value of 36.1% results in an adjusted estimate of 42.7% of SBs installing EE measures over the previous 2-year period. This and other adjusted estimates are reported with 80% confidence.

Figure 3 below shows the distribution of energy related upgrades by equipment type and Figure 4 shows the portion of each measure that were likely or verified as energy efficient.[13] Overall, we found that lighting upgrades were most common; 78% of businesses that upgraded energy equipment reported including lighting measures. Other measures, while less common, were included in a significant portion of the upgrades. For example, refrigeration and cooling measures were included in 21% and 18% of upgrade projects respectively.

Figure 3. Frequency of Energy-Related Upgrades by Equipment Type

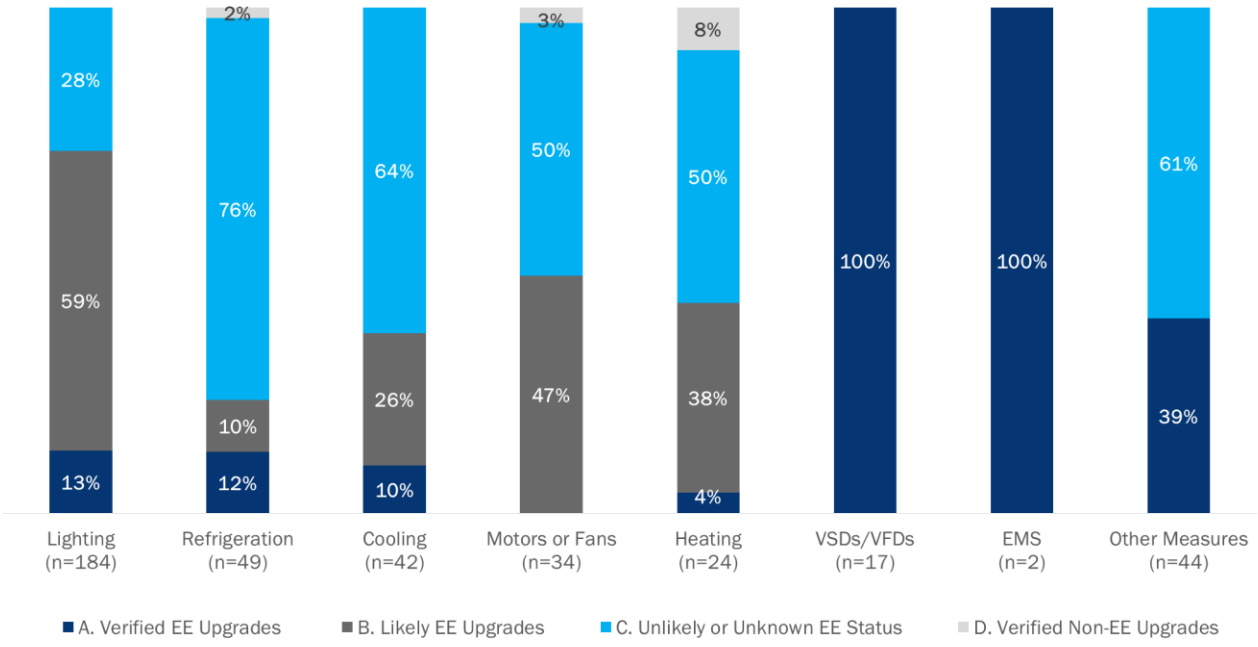


Notably, 72% of the lighting upgrades were either verified or likely energy efficient, demonstrating the prevalence of efficient lighting technologies such as LEDs and CFLs. However, in the case of cooling, refrigeration, motors/fans and heating upgrades, less than half of the reported measures could be classified as verified or likely energy efficient. This may indicate that for larger pieces of equipment, small business owners are more likely to replace existing equipment with the standard efficiency option than is the case for lighting. Notably, 18% of projects did include specific equipment that was considered energy efficient for this study, including VSDs or VFDs, EMS, insulation, and window film.

Assuming that the verified and likely EE measures represented equipment with better than standard efficiencies, we found that while 80% of businesses who completed energy related upgrades reported including EE equipment, just 56% of installed measures were efficient. Of the non-lighting measures, the portion that qualified as efficient dropped to just 42%.

[13] Detailed results are provided in Table 33 in Appendix B.

Figure 4. Incidence of EE Equipment Among Reported Energy-Related Upgrade Measures[14]



Current use of External Financing for Energy Upgrades

Our study reveals that very few small businesses use external financing for equipment upgrades. External financing in this study included any loans taken from third-parties including term loans, revolving lines of credit and credit cards (if the business carried a credit card balance for more than one month). Among the 53.5% of businesses that upgraded energy equipment in the past two years, just 7.6% used external financing, and similarly of those who included EE measures, just 7.8% used financing. Overall, this indicated that 4% of California small businesses used external financing specifically for energy-related equipment in the past two years, as shown Table 14 below.[15] Many small businesses use financing for many different business purposes; it is important to highlight that this is the proportion that use financing specifically for energy-related equipment.

[14] **Verified EE**: Refers to energy upgrades confirmed as energy efficient based on information gathered through online verification as well as on-site verification studies. Verified EE measures also include energy equipment that are EE by default such as EMS, solar panels, insulation, etc.
Likely EE: Respondents who indicated received rebates or free lighting in the case of lighting upgrades or those who indicated paying more for their upgrades are assumed to have purchased energy equipment that are most likely energy-efficient.
Unknown/Unlikely EE: Composed of respondents who did not complete the measure verification follow-up survey and neither received rebates or free lighting nor paid more
Verified Non-EE: Refers to energy upgrades confirmed with respondent via follow up survey as non-EE

[15] Notably, these estimates exclude businesses that used solar financing as well as businesses that paid by credit card and paid off the amount within 30 days.

Table 14. Small Businesses that Used Financing for Projects (n=443, 90% Confidence)

Metric	Estimate	Standard Error	Lower Bound	Upper Bound
Used Financing for Energy-Related Equipment (among all SBs; n=443)	4.1%	0.90%	2.6%	5.6%
Used Financing for Energy-Efficient Upgrade (among all SBs; n=443)	3.4%	0.90%	2.0%	4.8%
Upgraders who Used Financing (among those who upgraded any equipment; n=237)	7.6%	1.70%	4.8%	10.4%
EE Upgraders who Used Financing (among those who upgraded to EE equipment, n=160)	7.8%	2.10%	4.3%	11.3%

Level of Investment in Energy Upgrades

Table 15 below shows the mean project costs from the quantitative survey and the adjustment ratio applied to the data based in-depth interviews. Adjustments were made by verifying what respondents had considered within their report energy upgrade costs. [16] Overall, the study revealed that respondents typically over-reported project costs during initial questioning in the quantitative survey. Through follow-up depth interviews, we found that further questioning revealed that customers were often reporting a larger renovation project cost that included non-energy related equipment such as painting, new walls, and other construction or even renewable investments such as solar. As such, most customers trimmed down their original cost estimate to account just for the cost of the energy-related equipment. On average, we found that energy-related project costs were one-third of the original cost estimates.

Taking the cost adjustments into consideration, this study found that small businesses invested an average of $8,715[17] for energy-related upgrades, excluding solar, over a two-year period. Project costs ranged from $852 to $132K when solar is not included.[18] Respondents reported that projects that were externally financed ($16,672 per project) were more than twice as costly as those that were self-financed ($7,849 per project).

Table 15. Mean Project Cost among Businesses Reporting Conducting Energy-Related Upgrades (80% Confidence)

Metric	All Energy-Related Upgrades		Financed Energy-Related Upgrades		Self-Financed Energy-Related Upgrades	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
Mean Reported Upgrade Cost	$25,577	4,806	$48,929	$15,105	$23,036	$4,732
Adjustment Ratio	0.3407	0.0407	0.3407	0.0407	0.3407	0.0407
Mean Adjusted Upgrade Cost	$8,715	5,160	$16,672	$5,249	$7,849	$1,684
Overall Relative Precision		84%		40%		28%

[16] As described in Sections 3.2 and 3.3, we conducted in-depth interviews with nine of the 18 SBs that reported using financing for their energy-related projects. Based on those interviews, we were able to get more precise information about project costs and portions of the loans that went toward energy-related projects.

[17] Average excludes solar purchases, upgrades without associated cost, and respondents that said "Don't know" or "Refused"; Including solar purchases, the average is $64,191 (n=170)

[18] This study found that small business solar projects typically cost more than $100K.

The table below shows the self-financed project costs by measure type. The majority of self-financed projects are for lighting upgrades costing between $1 and $5,000. Moreover, over 50% of all self-financed energy upgrades cost less than $5,000. This may help to explain why such a small portion of projects used external financing, given that smaller projects may be easier to pay for using cash on hand.

Table 16. Breakdown of Self-Financed Energy Measure Costs[a]

Project Cost	Lighting	Cooling	Heating	Refrigeration	Motors or Fans	VSDs/VFDs	Total Upgrade Project
	% (n=135)	% (n=33)	% (n=20)	% (n=42)	% (n=25)	% (n=14)	% (n=210
$1 to under $5,000	73%	30%	20%	60%	48%	36%	56%
$5,000 to under $10,000	-	-	-	-	-	-	2%
$10,000 to under $50,000	5%	30%	30%	17%	12%	21%	12%
$50,000 to under $100,000	1%	9%	5%	2%	4%	-	2%
$100,000 to under $250,000	-	-	-	-	-	7%	1%
$250,000 to under $1 million	-	-	-	-	-	-	0.5%
Don't know/Refused	21%	30%	45%	21%	36%	36%	26%

Note: [a] Excludes respondents who received free lighting or reported cost of $0.00

Financed Measure Types and Costs

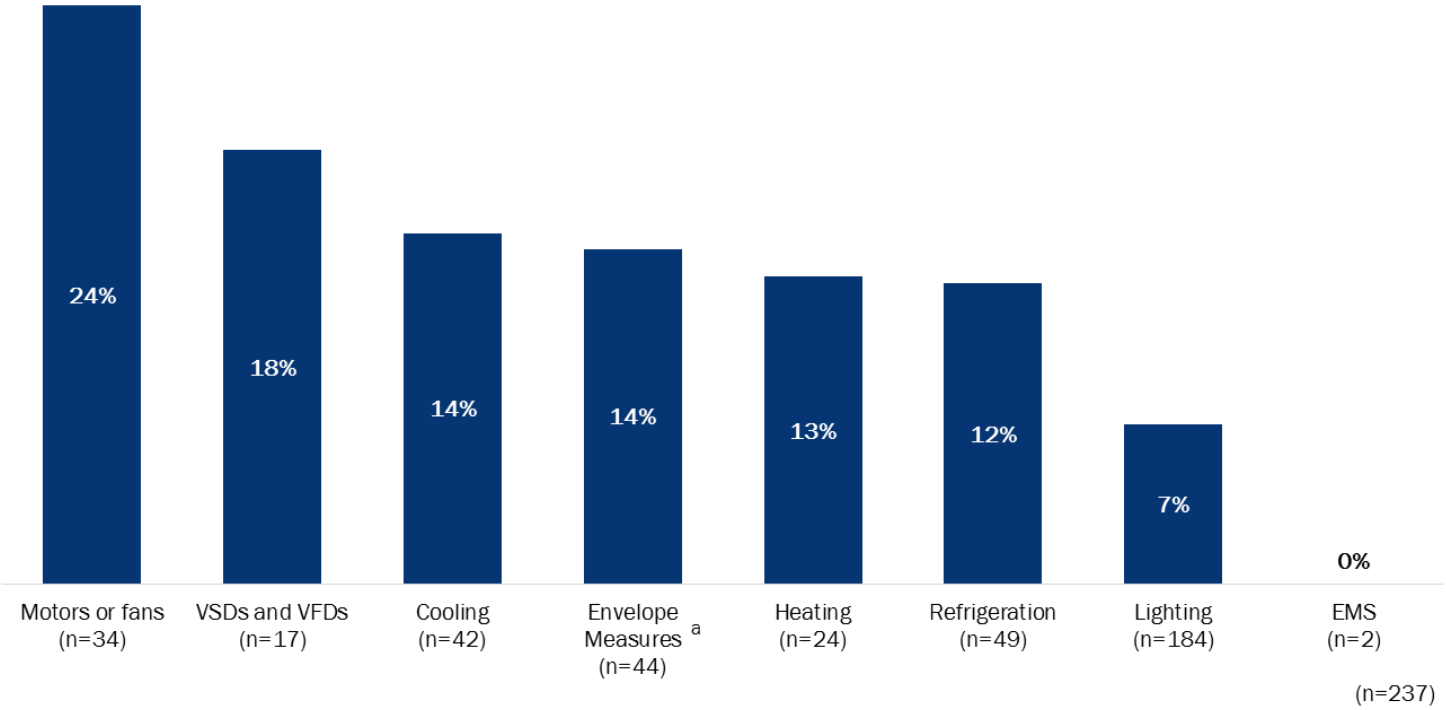
Our results indicate that most SBs implement projects costing much less than $250k, excluding solar. In lending and leasing, projects of this size are commonly referred to as the "the small ticket" financing market. As early stated, our study has revealed the average cost of financed energy upgrade projects to be $16,672 (when solar and non-energy related costs are removed). While 15.5% of the self-financed energy upgrades projects cost more than $10,000, 50% of the externally financed projects (9/18) cost more than $10,000. Moreover, the six businesses that used financing for projects less than $10,000, included the only two businesses that reported using a credit card (paid off over more than one month). While these are counted as financed improvement projects, it is important to note that credit card financing carries very little transaction effort, and does not require a separate approval process specific to the improvements purchased. The Figure below shows the proportion of measure types that were externally financed. A more detailed comparison between financed and self-financed measures is provided in Appendix A. As shown in the Figure, financed projects tend to include larger equipment items such as:

- Cooling,
- Motors and fans,
- VSDs,
- And building envelope upgrades.

These findings indicate that California small businesses tend to use external financing to support larger energy upgrade projects that include larger equipment and efficiency specific items such as envelope and VSD

improvements. Moreover, earlier results showed that small businesses were less likely to install EE equipment for many of these larger upgrade measures, thus, making EE-specific financing more readily available to customers could increase the uptake of EE measures in non-lighting upgrades.

Figure 5. Proportion of Upgraded Measures that Were Externally Financed



Note: [a] Includes envelope measures such as insulation, windows, roof, and plastic film.

Among the 237 respondents who reported conducting an energy upgrade project in the past two years, just 18 used financing to support the work, the rest self-financed with cash on hand. Of those who did use external financing sources, conventional bank financing in the term loans or revolving lines of credit were most common. Equipment leases and credit card financing (not paid off within 30 days) were also identified in two cases each.

For specialized financing the study turned up one respondent who used an SBDC loan, and another who used a utility OBF program, and another who was financed through their contractor. The study did not however encounter any respondents who had used C-PACE financing, which is not surprising given the limited number of C-PACE loans issued each year in California, and the likelihood that most are used for larger businesses and building owners.

Overall, it appears that conventional sources of financing supported the bulk of the energy related financing projects, suggesting that specialized financing products currently do not have a significant reach.

Table 17. Type of Financing Used for Energy-Related Upgrades

Financing Type	Number reporting (n=18)
Revolving Bank line of credit	4
Business loan from bank (general)	3
Lease	2
Credit card	2
Business loan from SBDC	1
Financing through contractor	1
OBF	1
Mortgage	1
Unknown	3

Current Energy Upgrade Market Size (Investment and Loan Volume)

Taking the average project and loan costs and applying the incidence of energy related upgrades and the use of financing, we estimated the total investment in energy related upgrades and the total lending volume for these upgrades. For the baseline period of 2015, we estimate that small businesses invested $1.8 billion in energy related upgrades and that $264M (14.6%) of that investment was external financed. To put this in a larger context, small businesses throughout CA experienced historic lending in 2015 with a total of $5.3 billion lent to small businesses[19]; therefore the $264 million in energy upgrade lending is small in comparison. The IOUs' Statewide OBF program is a somewhat small portion of the energy upgrade lending volume; OBF lent $30 million to commercial customers in 2015, representing 11% of the lending volume ($264 million) estimated through this study. *Notably, the small numbers involved in the adjustment factor, and the high variability in loan amounts across SBs, leads to a relative precision of about 40% at the 80% confidence level.*

Table 18. Estimated Market Size for All Energy Upgrades and Financing Among California Small Businesses (80% Confidence)

	Energy Upgrade Projects		Energy-Efficient Upgrades*		Financed Energy Upgrades	
Metric	**Estimate**	**Standard Error**	**Estimate**	**Standard Error**	**Estimate**	**Standard Error**
Incidence	0.535	0.0240	0.430	0.036	0.041	0.009
Mean Adjusted Project Cost	$8,715	$5,160	$8,751	3,307	$16,272	$5,249
Total Qualified Population	779,451		779,451		779,451	
Market Size (2015-2016)	$3.6B	$2.4B	$2.9B	$1.1B	$530M	$166M
Overall Relative Precision		84%		49%		40%
Annual Market Size (2015)	$1.8B		$1.45B		$264M	

*Estimate is for projects with at least 1 energy efficient measure

[19]https://www.sba.gov/about-sba/sba-newsroom/press-releases-media-advisories/loan-volume-exceeds-1-billion-first-time-northern-california-fy-2015

A large share (about 80%) of costs for energy-related upgrades were accounted for by customers who had incorporated at least one EE measure in their upgrades.

Assessing the Potentially Addressable Market

A low-end estimate of the addressable market for efficiency financing is in the order to $357M per year: Among all small businesses, 11% of the reported projects were of the self-financed and included no efficiency measures. Assuming that financing could help shift these upgrades into energy efficiency projects, and considering that the average energy equipment cost of these projects was $8,127, the addressable market they represent is estimated to be $357M per year. This market could likely be larger, considering the higher.

The maximum annual lending envelope for the CHEEF SB Pilots is $70M per year: CAEATFA reports that there is $14M in funds available for the pilot loan loss reserve funds. Considering the 2-year pilot duration and the 10:1 LLR to loans ratio, this translates into $70M per year of potential loans.

Considering the relative size of these values, it is unlikely that the Pilots will be limited by the potential market size. If they are demand-limited, it would be likely be attributable to barriers related to awareness, marketing and reluctance to take on debt.

Use of Financing in IOU Resource-Acquisition Programs

Another key metric in this study is the use of financing in IOU resource-acquisition programs. The company leading the impact evaluation of the CA IOU's 2013-2014 non-residential resource programs included a battery of questions that explored non-residential customers' use of financing for EE projects whereby customers also received an IOU incentive/rebate. The 2015 impact evaluation efforts excluded this battery of questions and therefore 2013-2014 data must serve as the baseline metric for the Pilot. However, we strongly encourage all future commercial impact evaluation efforts to include the finance question battery to allow for tracking changes over time in the resource acquisition programs due to the Pilot's intervention. This strategy for tracking this metric over time is more cost-effective and less burdensome on program participants than a separate study.

Among 2013-2014 non-residential IOU resource program participants, survey results show that the use of financing is low among non-residential customers that receive upgrades with IOU resource program assistance (10%), which is similar to our survey findings from the general marketplace where 7.8% of small businesses who performed EE upgrades used financing. This suggest that in its current form, the utility OBF programs are not substantially increasing the use of financing to support EE upgrades.

Table 19. Financing among Non-Residential IOU Program Participants

	n	%
Internal funding only	442	90%
External financing only	39	8%
Both internal and external financing	11	2%
Total	**492**	**100%**

Note: Based on valid responses, 120 respondents removed for answering "don't know" or "refused".

We also analyzed financing use by IOU and developed weights to account for the size of projects (kWh savings) (see Table 20). We found significant difference at the 90% confidence level between the IOUs. PG&E and

SDG&E have significantly higher percentage of customers using external funding, or financing, for their projects than SCE and SoCalGas.

Table 20. Financing among Non-Residential IOU Program Participants, by IOU (Weighted)

	PG&E	SCE	SDG&E	SoCalGas
Self-Financing only	84%	**97%** [a]	84%	**100%** [a]
External Financing only	**13%** [a]	3%	**16%** [a]	0%
Both Self and External Financing	3%	0%	0%	0%

[a] Signifies statistical difference at the 90% confidence level
Note: Weighted data. Based on valid responses, 120 respondents removed for answering "don't know" or "refused".

The majority of customers who reported using external financing to support their EE upgrades participated in either the Commercial Direct Install Program (18%), Agricultural Incentives Energy Efficiency Program (18%), or the Statewide Commercial Deemed Incentives Program (18%). They were asked to specify the type of financing and the majority (76%) could recall the source. Among them, of the most common source was a bank loan or line of credit, similar to the general marketplace, followed by the OBF program. Notably, few customers financed through an equipment lease and no one reported using C-PACE financing.

Table 21. Sources for External Financing (Multiple Response)

	n	Portion
Bank Loan	17	**45%**
Secured	7	
Unsecured	3	
Line of Credit	7	
On-Bill Financing (OBF)	13	**34%**
Non-Bank Private	9	**24%**
Contractor	6	
Vendor	3	
EE financing program	5	**13%**
Credit Card	4	**11%**
Equipment Lease	3	**8%**
PACE	0	**0%**
Total	**38**	

4.3 Forward looking market and intentions

The baseline study also probed respondents on their plans to carry out energy upgrades in the next two years to determine if the market is likely to change or evolve over the initial pilot period.

Many Businesses Plan to Purchase Energy-Related Equipment in the Near Future

When asked whether their company would consider purchasing energy-related equipment such as lighting, heating and cooling, refrigeration, motors or VSDs, or EMS among others, in the next two years, 47% of responding SBs indicated that they plan to purchase such equipment in that time frame. This is consistent with the reported portion of small businesses who reported to have completed an upgrade in the past two years (53%), suggesting that the overall market size could be maintained.

The results presented in the Table below indicate that there is much variation among the types of energy-related purchases that are planned, with lighting dominating most businesses upgrade plans (representing 35% of all businesses or 74% of businesses who are planning any type of energy related upgrade, which is again consistent with reported upgrades in the past two years). There is also a significant incidence of businesses planning to upgrade their HVAC, refrigeration equipment and motors.

Overall, there is little variation in planned energy related purchases among the three business segments, with the exception of refrigeration upgrades which are concentrated in the food, liquor and non-office healthcare segment. However, our results indicate that small businesses with fewer than 10 employees report being significantly less likely to undertake an energy upgrade (41%) than are businesses with greater than 10 employees (57%).

Table 22. Future Equipment Plans

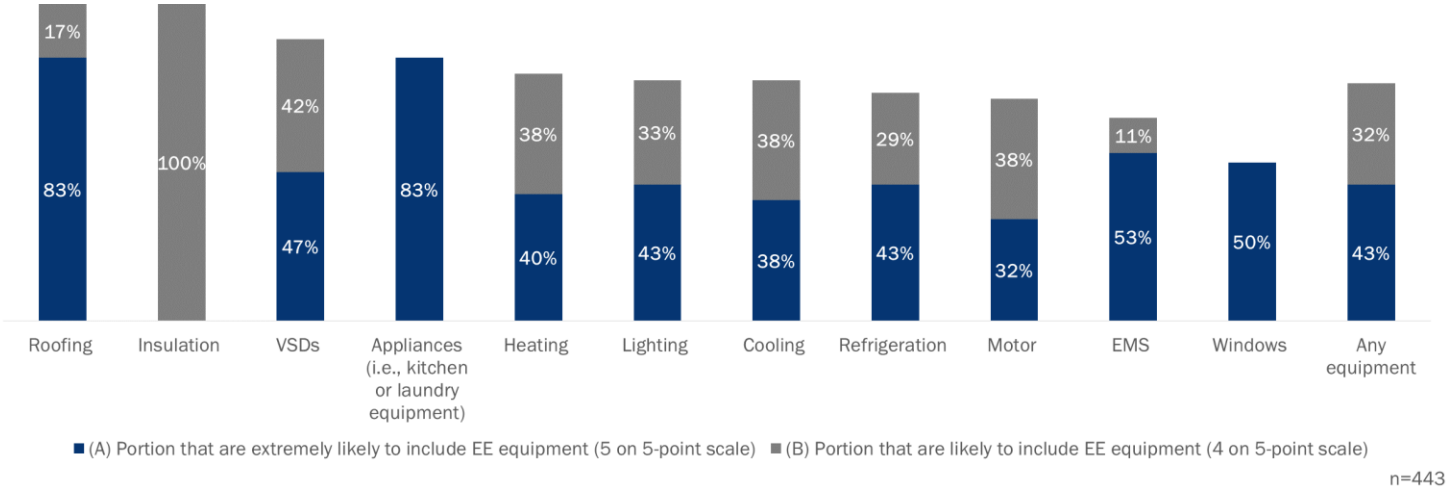
Planned Measure	Portion of ALL SBs that plan to purchase equipment (self-report) (n=443)
Plan to install at least one measure of any type	47%
Lighting	35%
Cooling	32%
Heating	23%
Refrigeration	24%
Motor	16%
VSDs	9%
EMS	9%
Appliances (i.e., kitchen or laundry equipment)	3%
Roofing	3%
Insulation	1%
Windows	1%
Thermostat	0.5%

A Substantial Portion of Small Businesses Would Choose EE equipment

Among small businesses with specific plans to upgrade equipment in the next two years, 75% reported being "extremely likely" (43%) or "likely" (32%) to include efficiency equipment. This is consistent with the earlier

findings that nearly 80% of SB energy replacement projects included at least one EE measure, suggesting that there is an openness to investing EE measures among small businesses.

Figure 6. Portion of Equipment Upgrades that Are EE



n=443

No significant trends emerged among the various business segments or between business with fewer or greater than 10 employees, with all reporting similar results. The same can be said of those who are planning to conduct an energy upgrade and those who do not have concrete plans, each reports being similarly likely to select EE measures in their energy related projects.

Reported Barriers to Including EE Measures

While many businesses reported being likely to select EE equipment in their upgrades, a significant portion of the businesses surveyed also reported barriers to purchasing EE equipment, which is consistent with the current market results that showed that while many businesses report including EE equipment, just 57% of measures (41% of non-lighting) indeed qualified as energy efficient.

Among all small businesses in this study, over half (53%) identified at least one barrier to installing EE measures in their energy upgrade projects. Among businesses who were not likely to select EE equipment in the future (ratings 1-3 on a 5-point likelihood scale), equipment cost was also a paramount barrier. Concerns over the cost of EE equipment was consistently the top barrier among respondents, with a significant portion also wondering if the additional cost of EE equipment was justified by its performance.

Successful EE financing programs aim to address this “first-cost” barrier, by providing the capital to businesses at the time of purchase and allowing them to repay from the accrued energy bill savings down the road. This suggests that for the CHEEF SB pilots to succeed, they will need to address the first-cost barrier, and provide information that increase customer confidence that the savings will be sufficient to cover the financing repayments.

Table 23. Reported Barriers to Including EE Measures in Energy Upgrade Projects

Barrier Reported	Among all Small Businesses (n=443)	Among businesses that are not likely to conduct an energy related upgrade (n=85)
No Barriers	47%	N/A
EE equipment costs too much	40%	66%
EE equipment usually does not save enough energy to justify the higher costs	33%	54%
EE equipment isn't always in stock	22%	29%
EE equipment does not perform as well as standard efficiency equipment	15%	16%

4.4 Finance Decision-Making

To further assess the market potential for the CHEEF SB pilots, our survey explored the awareness of and intention to use financing to support energy upgrades among California small businesses.

Awareness of EE Financing Options is Severely Lacking

Overall, we found that while a third to half of small business are aware of financing options that can be used to support energy related upgrades, only a small portion are aware of EE-specific financing options (see Table 24 Below).

To determine SBs' awareness of energy-specific and conventional financing options that can be used for energy-related projects, we asked respondents whether they were aware of any financing options that could be utilized to make energy saving improvements to their businesses. We then asked them to name the financing options they were aware of (unaided awareness). We then asked whether they were aware of specific financing options such as C-PACE and OBF if not previously mentioned (aided). As shown in Table 24, aided and unaided, half of SBs were aware of any financing option, while 17% were aware of C-PACE, and 9% were aware of OBF. Notably, among the three business sectors, those in the Food, Liquor, & Non-Office Health Care sectors were statistically significantly less aware of C-PACE as 8% of SBs in this sector indicated being aware of C-PACE compared to 17% of SBs in the Ag-Industrial and 18% of SBs in the Office, Retail, & Misc. sectors. There was no statistically significant differences in awareness based on company size.

Table 24. Awareness of Energy-Specific Financing Products

Financing Options	% Aware (n=443)	
	Unaided	Aided and Unaided
Any Financing Option	36%	52%
C-PACE	1%	17%
OBF	0.23%	9%

Among the three business sectors, Ag-Industrial SBs had higher unaided awareness levels of any type of financing (Table 25). Approximately one-third of SBs were aware, unaided, of any type of financing for energy upgrades. There is ample opportunity to increase awareness of EE financing for all SBs.

Table 25. Unaided Awareness of Any Financing Option by Business Stratum

Awareness of Any Financing (Unaided)	Food, Liquor, & Non-Office Health Care (n=74)	Ag-Industrial (n=114)	Office, Retail, & Misc. (n=255)	Overall (n=443)
Yes	36%	46%	32%	36%
No	61%	52%	66%	61%
(Don't know)	1%	1%	2%	1%
(Refused)	1%	1%	1%	1%

Over a third of SBs were aware of conventional types of financing options such as a bank loan, a line of credit, or using a credit card, while 37% were aware of equipment leasing.

Table 26. Awareness of Conventional Financing Options

Conventional Financing Options	% Aware (n=443)
Energy using equipment leasing (aided)	37%
Conventional lending (bank, contractor, other entity) for energy saving improvements (aided)	33%
Conventional lending (credit cards, bank lending) for energy saving improvements (unaided)	6%

The awareness results coupled with the low incidence of use of financing for energy upgrades suggest that small businesses could benefit from more information on how to apply financing to their energy upgrade projects, and that further education around EE-specific financing could significantly improve awareness of financing options that overcome the barriers to including more EE measures in upgrade projects.

Financing Intentions and Noted Barriers

The survey revealed that despite the currently low use of financing for energy upgrades among small businesses (less than 5% overall) a significantly higher portion would consider using financing to support EE equipment purchases. Among those who are not extremely likely to purchase EE equipment in the next two years (58%), two-thirds said they would be more likely to choose EE with financing. Interestingly, among businesses who are extremely likely to purchase EE equipment, 41% said they would consider financing. Moreover, the results indicate that small businesses with more than 10 employees are somewhat more likely to choose EE equipment when financing is available (75% vs 60% for businesses with fewer than 10 employees).

Once again, it appears that a lack of awareness, and the absence of specialized EE financing products available at the point of sale, could be preventing small businesses from financing upgrades and making further investments in EE equipment.

As stated earlier, 43% of the small businesses say that they are extremely likely to choose EE equipment the next time they need to replace or invest in energy-related equipment. Among those who were NOT extremely to select EE equipment in the future, 64% of them indicated that they would be more likely to install EE equipment if there were small business financing options available that helped pay the increased equipment costs. Notably, this customer preference data is hypothetical and may not reflect their actual purchasing

decisions. The percentage of SBs that used financing in the past may be a more reliable indicator of SBs true preferences and decisions.

Table 27. Likelihood to choose EE with Financing

	Among those who ARE NOT extremely likely to purchase EE, % who would be MORE likely to choose EE with FINANCING (n=257)		Among those who ARE extremely likely to purchase EE equipment, % who would consider FINANCING (n=186)	
	n	%	n	%
Yes	165	64%	77	41%
No	81	32%	100	54%
Don't Know/Refused	11	4%	9	5%

The reported barriers to using financing for EE upgrades are telling. Whether a business was considering EE equipment or not, a substantial portion were concerned over taking on additional debt (see Table 28 below). This may help explain why so little financing is currently used to support energy upgrades among small businesses. It also suggests that financing approaches that do not impact a business's overall debt limits (such as OBF and C-PACE) can help to increase the use of financing.

Table 28. Reported Barriers to Using Financing for EE Equipment

Barrier Cited	Among Small Businesses Who Would Not Select EE with Financing (n=181)	Barriers to Financing (<10 empl.) (n=125)	Barriers to Financing (>10 empl.) (n=41)
Don't want additional debt so would pay cash	81%	77%	85%
Applying for financing is too much of a hassle	43%	46%*	26%
Not interested in paying more for EE equipment:	35%	39%*	17%
Not sure where I could find this kind of financing:	23%	24%	15%
Worry that business would not qualify	14%	17%	10%

Note: * Indicates that results for SBs with less than 10 employees are statistically significant compared to the results for SBs with more than 10 employees.

Other barriers also appear to play an important role in preventing small businesses from pursuing financing of EE equipment. In particular, businesses with fewer than 10 employees reported were generally more impacted by the barriers listed above than for larger businesses were, particularly where the hassle factor, uncertainty over where to find financing, and worries over whether they would qualify are concerned.

Based on the barriers identified, solutions to increase uptake of EE financing could include:

- Reducing the hassle associated with applying for financing;
- Offering cash-flow positive financing terms (where energy savings are demonstrated to exceed the debt service);
- Increasing awareness of financing; and
- Expanding underwriting criteria.

Finally, we provided respondents with a brief description of two of the currently available specialized EE financing products in order to determine their potential interest in using these types of financing. Overall, it appears that the portions of businesses who could be interested in using these products is much higher than the current uptake rates, again supporting the conclusion that increased awareness and reduced transaction hassle could increase the general use of EE specific financing. While less than 5% of all small businesses currently use financing for energy upgrades, 37% and 27% responded that they would be interested in using OBF or C-PACE, respectively.

Table 29. Using C-PACE vs. On-Bill Financing to Finance Energy-Related Upgrades

Would you consider…	% Yes, among those who would consider financing (n=261)	% Yes, among all small businesses (n=443)
OBF when purchasing energy using equipment?	62%	37%
A C-PACE loan when purchasing energy using equipment?	45%	27%

Influencing factors in Financing and EE

To dig deeper into the considerations that impact a small business' choice of financing options and EE equipment, we conducted in-depth follow-up interviews with nine of the 18 survey respondents who indicated that they had used financing for their energy upgrade. Table 37 (in Appendix A) provides a summary of the type of business, the equipment financed, and the financing conditions from each in-depth interview participant. Below, we provide a few key findings that emerged from the interview results.

- **Energy efficiency is important, but it is one factor among many that influence energy equipment purchase decisions**: When asked about how they selected their energy-related equipment, four of eight respondents reported that they purchased the equipment based on EE or energy saving capacity of the equipment, while two respondents reported purchasing equipment based on compatibility with their business or work space. Other factors that influenced the purchase of specific energy-related equipment include the contractor recommendation, functionality of the equipment, personal preference, and wattage of the lighting equipment.
- **Existing lender, supplier and contractor contacts are influential in introducing businesses to financing options:** Most (five of nine) respondents learned about the financing option their companies used through an existing supplier or contact (i.e., loan officer, bank, and credit union), while one learned of OBF through a contractor.
- **Lack of liquid capital is central to businesses' decision to finance energy upgrades:** When asked why they used financing instead of paying cash upfront for their upgrades, three of four in-depth interview respondents noted that they did not have cash on hand to pay for the upgrades upfront. Moreover, three of six respondents indicated that they would not have performed the energy upgrades at all if financing had not been available.
- **Financing loan conditions appear to be secondary to other considerations when choosing to finance energy upgrades:** Notably, none of the nine in-depth interview respondents reported being particular about the loan terms, interest rates, or other financing program characteristics. Instead, in-depth interview results suggest that familiarity with or having a relationship with financial institutions drives the decision to finance more than loan terms and interest rates.

Taken together, these findings generally confirm the findings of the survey, suggesting that successful financing programs need to tap into existing contract and lender relationships with small businesses, and make a clear case in support of the EE equipment option by offering cash-flow positive financing. This may prove successful in drawing more small businesses into supporting energy upgrades through EE financing, and thereby increase the uptake of EE equipment within these projects.

5. Key Take-Aways for the CHEEF SB Pilot

The baseline study, revealed a number of take-ways that are relevant to the design, implementation and evaluation of the CHEEF SB Pilots. Primarily these include:

- **The overall market for energy-related improvements in the SB market is significant** (estimated at over $1.8 billion annually), offering a solid foundation to encourage more players into the market, and increase competition among lenders to offer competitive and accessible EE financing to SB customers.

- **While many SBs have made an energy-related upgrade in the past two years (54%), they do not often use financing to support energy-related upgrades:** Currently just 4.1% of respondents reported using financing to undertake an energy-related improvement. However, a substantial portion (55%) of respondents indicated that if they had an EE financing option they would be interested to use it, which suggests that there may be a lack of awareness and access to financing for SB's who seek to improve the energy performance of their premises.

- **The CHEEF Pilots could be large enough to make a discernable change in the overall energy upgrade financing market size:** We estimate that the current size of EE measure financing among California small businesses is approximately $264M per year, $137M of which is used for efficiency upgrade projects. The maximum financing envelope for the CHEEF SB Pilots is $70M per year which represents 26% of current energy upgrade financing, and 51% of current efficiency upgrade financing. If the Pilots are successful in accessing heretofore untapped efficiency upgrade financing opportunities, a resulting increase in the overall efficiency financing market should be evident.

- **There remains much untapped potential to increase uptake of EE equipment within energy upgrades:** A substantial portion of businesses reported choosing at least one EE equipment item within their energy upgrades (80% of those who completed upgrade projects). However, among the reported energy upgrade measures, we verified that only 57% were likely better than standard efficiency (and even among those many would likely not be the most efficient option available), suggesting that significant room remains for increasing the uptake of EE equipment.

- **Financing may address the key barriers to choosing EE equipment.** Interestingly, the primary barrier noted by respondents was the cost of EE equipment, followed by concerns as to whether the energy savings justify the costs. Point of sale financing or leases that can demonstrate cash-flow positive returns on EE equipment may address these barriers.

- **While lighting remains by far the most common EE improvement, SB projects that are supported by financing tend to be larger and include "deeper" saving measures** such as HVAC and pump/motor improvements than self-financed upgrades which tend to focus on low cost lighting upgrades. Moreover, small businesses are less likely to choose the EE option for these larger measures, suggesting that increased access to financing could increase the uptake of EE equipment among the non-lighting equipment types.

- **Respondents expressed a strong interest in financing EE improvements, but they also noted a number of significant barriers.** A substantial portion (55%) of businesses said that they would be interested to use financing products that can allow them to pay for EE equipment. However, among those who are not interested in financing EE in the future, over 80% of respondents expressed an aversion to taking on more debt. They were also concerned about the hassle factor or their eligibility for financing, and over 20% were not even sure where they could find financing for EE equipment.

- **Easy access to EE financing could enable more businesses to include EE in their upgrades.** If the CHEEF SB Pilots can address the cost, hassle factor, awareness and access barriers by offering financing products that do not impact businesses' access to capital for other needs, are easily available, provide cash-flow positive investments, and can be accessed through simple to complete applications they could help tap into some of the expressed (but not yet realized) interest in financing EE equipment. Moreover, increasing the prominence of EE financing in conversation between SB decision-makers and their banks and contractors/suppliers may help to increase awareness of these opportunities.

Taken together, these findings indicate that the SB market could be fertile ground for EE financing products. There is a significant volume of energy-related upgrades, which carries a notable stream of missed opportunities to include more and deeper EE improvements in these projects. Increasing the awareness of and access to EE financing among SB owners could help tap into this market opportunity.

6. Summary of SB EE Financing Market Baseline Data and Suggested Future Use

One of the objectives of the CHEEF Pilots is to transform the market for financing over time which drove the decision to invest in a market-based baseline study. This market baseline can be used to track market changes over time and assess market progress and Pilot effectiveness. A summary of the key baseline metrics and the changes we would look for to indicate that the market is evolving is located in Table 30 below. The Pilots may not have an impact on all of these market metrics, but all data has the potential to change. In the future, these areas are where a follow-up study can look to see if changes occurred, although methods would need to be developed to determine the causality of those changes. In the future, ***we recommend replicating this study to assess changes in these baseline metrics and whether the changes indicate an evolving market coupled with additional data sources to assess the role of the Pilots in helping to cause changes***.

To assess evidence that the SB Pilots have made an impact on the overall EE financing market, we suggest that the following hierarchy of benchmarks be applied as part of the SB Pilot impact evaluation:

1. **Expansion of the total amount of EE financing:** An expansion of the overall amount of EE financing among SB customers would provide the most solid evidence that the Pilots have impacted the market. This can be coupled with other benchmarks to assess what portion of this expansion is drawn from new financing and EE project activity.

2. **Expansion of the total amount of energy-related upgrade financing:** an expansion of energy-related financing coupled with an expansion of the amount of EE-specific financing may indicate that the Pilots encouraged new financing activity. If there is no notable expansion in the overall energy-related financing market, but there is an expansion in EE financing, this could indicate that the EE financing primarily attracted customers who were already using financing to support upgrades. Further evidence would be needed in this case to determine if these customers were enticed by the SB Pilots to undertake more efficient upgrades than they would have otherwise done.

3. **Increased Size ($), EE measures (#) and average efficiency rating of financed EE projects, as compared to self-financed EE projects:** If the Pilot financed upgrades exhibit a larger average value, number of EE measures per project than is the current average financed energy-related projects, then this may provide further evidence that the Pilots have increased the market for EE upgrades. This evidence will be strengthened if there is a notable spread between the size, number of measures and savings per measure among the Pilot financed projects and other financed and/or EE upgrade projects.

4. **Assessing an increase in the <u>overall</u> volume of efficiency spending may not be feasible:** While the Pilots may be large enough to make a discernable impact on the volume of energy upgrade and efficiency financing, this market is small compared to the overall EE upgrade market as a whole. As a result, considering the size of the overall EE upgrade market, and the associated standard error in our baseline study assessment of the market size, the Pilot loan volume may not be sufficient to support a measurable increase in the overall volume of efficiency project spending among small businesses.

Notably, the reader should consult the tables in earlier sections to see the confidence and precision estimates that surround the estimates shown in Table 30. Metrics associated with project costs, especially, should be treated with caution.

Table 30. Summary of Key Baseline Metrics

Baseline Metric	Baseline Estimate	Where Pilots Could Make an Impact
Percentage of SBs who have done an EE upgrade in the last 2 years (n=443)	42.7% with 80% confidence interval: Lower Bound=39.2%, Upper Bound=46.3%	Increase the % of SBs doing an EE upgrade
Percentage of SBs who have used loans/leases/ESAs for energy-related upgrades (with and without IOU incentives) in the last 2 years (n=443)	4.1% with 90% confidence interval; Lower Bound=2.6%, Upper Bound=5.6%	Increase the % of SBs using loans for energy-related upgrades
Size of energy-related upgrades, with and without financing (i.e., average loan/lease size, average % of upgrade costs financed, types of measures and number of measures financed)	**All energy-related upgrades:** Average adjusted cost of all energy-related upgrades both financed and self-financed: $8,715 **With financing, among energy-related:** Average adjusted cost of financed energy-related upgrades: $16,672, measures were 100% financed or included in larger loan/project; 12/18 lighting 8/18 motors 6/18 refrigeration 6/18 cooling 3/18 heating 3/18 VSDs/VFDs 0/18 EMS 6/18 envelope measures (i.e., insulation, windows, roof, plastic film) Range of 1-6 measures per project Average number of measures per project: 2.72 (n=18), where the standard deviation is 1.56 **Self-financed, among energy-related:** Average adjusted cost of self-financed energy-related upgrades excluding solar: $7,849 (excludes DK and Refused) 79% (n=219) lighting 20% (n=219) refrigeration 16% (n=219) cooling 12% (n=219) motors 10% (n=219) heating	Increase average investment in energy related upgrades (i.e. increase project size)

Summary of SB EE Financing Market Baseline Data and Suggested Future Use

Baseline Metric	Baseline Estimate	Where Pilots Could Make an Impact
	6% (n=219) VSD/VFD 5% (n=219) Solar <1% (n=219) EMS 17% (n=219) envelope measures (i.e., insulation, windows, roof, plastic film) Range of measures per project = 1-8 Average number of measures per project: 1.68 (n=219), where the standard deviation is 1.11	
Awareness of Financing		
Awareness of EE-specific financing products (including C-PACE, OBF and others, separating out solar loans)	Aware of EE Financing Products excluding solar: 26% (17% aware of C-PACE, 9% aware of OBF) Aware of solar Financing only: 5% • Awareness of any financing options for energy saving improvements (aided, yes/no) 36% • Awareness of C-PACE (unaided) 1% • Awareness of C-PACE (aided & unaided) 17% • Awareness of OBF (unaided) 0.23% • Awareness of OBF (aided and unaided) 9% • Awareness of any Energy Saving Financing Products (aided and unaided) 52%	Increase aided and unaided awareness of EE specific financing options
Awareness of conventional financing products that could be used for energy efficiency upgrades	• Awareness of conventional lending (credit cards, bank lending) for energy saving improvements (unaided) 6% • Awareness of conventional lending (bank, contractor, other entity) for energy saving improvements (aided) 33% • Awareness of energy using equipment leasing (aided) 37%	Increase unaided and aided awareness of conventional financing options that can be used for EE
Barriers to EE Upgrades and Energy Efficiency Financing		
Barriers to doing energy-efficient upgrades, including first-cost	42% of 443 SBs are extremely likely to purchase EE equipment in the next 2 years; 53% of all SBs mentioned some barriers to EE equipment; 47% did not state any barriers to selecting EE equipment Barriers are, in order of largest to smallest (n=443): • 40% said, "EE equipment costs too much." • 33% said, "EE equipment usually does not save enough energy to justify the higher costs." • 22% said, "EE equipment isn't always in stock." • 15% said, "EE equipment does not perform as well as standard efficiency equipment."	Increase in proportion of SBs who are extremely likely to purchase EE equipment; Decrease in proportion of SBs who cite cost-related barriers to selecting EE equipment

Summary of SB EE Financing Market Baseline Data and Suggested Future Use

Baseline Metric	Baseline Estimate	Where Pilots Could Make an Impact
	• 10% provided other varied barriers such as they already have EE equipment installed, it takes too much time and effort to install EE equipment, or they are unable to install EE equipment due to building constraints.	
Barriers to using financing for EE upgrades	55% of 443 said they would consider financing; 39% named a barrier to using financing; In order of largest to smallest (n=181): • 81% said, "I don't want additional debt so I'd pay cash." • 43% said, "Applying for financing is too much of a hassle." • 35% said, "I'm not interested in paying more money for energy efficient equipment." • 23% said, "I'm not sure where I could find this kind of financing." • 14% said, "I worry that my business would not qualify for financing." • 25% provided miscellaneous responses such as their business does not need financing, they rent their facility, financing cost is too expensive, etc. • 5% Don't know/Refused	Increase in proportion who would consider financing; decrease in proportion of SBs citing barriers to financing related to awareness and access to financing
Use of Financing		
Type of financing used (i.e. loan vs. lease, term loans/C-PACE/OBF or others, originator, pay for performance models, interest rate, terms, underwriting criteria, conventional lending v. EE-specific)	Almost all businesses used conventional financing: among the 18 who financed an energy-related upgrade: 4 took out a business loan, 3 used revolving business lines of credit, 2 leased, 1 used a SBDC loan, 1 used financing through contractor, 1 used On-Bill Financing (through contractor solicitation), 2 used credit cards, 1 financed through mortgage, 2 DK the financing type, and 1 indicated "financing" in general **Interest Rates** range between 4% - 18%: Among the 18 who used financing for the energy upgrades, 2 said 4.5%, 1 said 4%, 1 said 5%, 1 said 6%, 1 said 15%, and 1 said 18%, the rest are N/A (n=4), DK (n=3), and Unknown/Unverified (n=4) **Loan terms** between 3 to 10 years: One respondent indicated term is revolving, to be paid off in 3 years, 2 indicated 5 years; 1 indicated 7 years, and 1 indicated 10 years, while 3 were not applicable and 1 noted that they tried to pay off at the end of the year. 9/18 unknown (did not complete IDI)	Increase in use of EE-specific financing versus conventional sources

Summary of SB EE Financing Market Baseline Data and Suggested Future Use

Baseline Metric	Baseline Estimate	Where Pilots Could Make an Impact
	Underwriting Criteria include the following: Credit Score and Financials (1/18); Business Plan and Financials (1/18); Credit score only (2/18); Have revolving loan for 70 years (1/18); Have an operating line for the farm (1/18); N/A (3/18)	
Total loan and lease volume for EE upgrades (with and without IOU incentives), including average (broken down by type of EEFP versus conventional)	**Loan Amount and Project Cost Estimates:** • Estimated total loan volume for energy-related upgrades is $528 million among SBs in CA • Average self-reported loan is $48,929 (with standard error of $15,105) • Adjusted average loan amount $16,672 (with standard error of $5,249 and overall relative precision of 40%) • Average self-financed energy-related upgrade cost is $23,036 (n=154; with standard error of $4,732 and overall relative precision of 28%) **Average Adjusted Loan Amounts by Financing Used:** • Bank Line of Credit (n=3): $8,780 standard deviation=$6,413) • Bank Loan (n=4): $5,580 (standard deviation=$4,889) • Credit Card (n=2): $520 (standard deviation=$36) • SBDC Loan (n=1): $852 (standard deviation=0) • OBF (n=1): <$10,222 (standard deviation=0) • Other (non-specific financing, lease) (n=4): $25,768 (standard deviation=$24,653)	Increase the energy-related loan volume
Financing in IOU Resource Acquisition Programs		
Identify the proportion of SBs that use various types of financing when participating in resource acquisition programs	Used self-financing only: 90% (n=492) Used external financing: 8% (n=492) Used both self and external financing: 2% (n=492) Note: Reported values are based on 2013-2014 data.	Increase the proportion of SBs that use external financing in IOU resource programs

A. Appendix: Detailed Study Findings Tables

Table 31. Small Businesses with Energy Upgrades; Adjustment Factor (n=443)

Metric	Estimate	Lower Bound	Upper Bound
Completed Energy-Related Upgrades (Self-Report, 90% Confidence)	**53.5%**	49.6%	57.4%
Completed Energy-Efficient Upgrades (Self-Report, 80% Confidence)	36.1%	33.2%	39.0%
Adjustment Ratio (n=31, 80% Confidence)	1.19	1.11	1.27
Completed Energy-Efficient Upgrade (Adjusted, 80% Confidence)	**42.7%**	39.20	46.3%

Table 32. Financed and Self-Financed Projects by Measure Type

Measure	Financed Projects		Self-Financed Projects		Projects Overall		Difference (90% Conf)		
	Count	Portion (n=18)	Count	Portion (n=219)	Count	Portion (n=237)	% pts	Lower Bound	Upper Bound
Lighting	12	67%	172	79%	184	78%	12.0	-5.0	29.0
Refrigeration	6	33%	43	20%	49	21%	-13.0	-29.0	3.0
Cooling	6	33%	36	16%	42	18%	-17.0	-32.0	-2.0
Motors or fans	8	44%	26	12%	34	14%	-32.0	-46.0	-18.0
Heating	3	17%	21	10%	24	10%	-7.5	-19.0	5.0
VSDs and VFDs	3	17%	14	6%	17	7%	-11.0	-21.0	-1.0
Envelope Measures[a]	6	33%	38	17%	44	19%	-16.0	-32.0	0.0
EMS	0	0	2	1%	2	1%			

Note: [a.] Includes envelope measures such as insulation, windows, roof, and plastic film.

Table 33. Incidence of Various EE Measures among Small Businesses who conducted Energy-Related Upgraders (Multiple Response)

Measure	Small Businesses with Self-Reported Energy-Related Upgrades		A. Verified EE Upgrades		B. Likely EE Upgrades[a]		C. Unlikely / Unknown EE Status[b]		D. Verified Non-EE Upgrades	
	Count	Percent (n=237)	Count	Percent[f]	Count	Percent[f]	Count	Percent[f]	Count	Percent[f]
Lighting	184	78%	23	13%	109	59%	52	28%	0	0%
Refrigeration	49	21%	6	12%	5	10%	37	76%	1	2%
Cooling	42	18%	4	10%	11	26%	27	64%	0	0%
Motors or Fans	34	14%	0	0%	16	47%	17	50%	1	3%
Heating	24	10%	1	4%	9	38%	12	50%	2	8%
VSDs and VFDs	17	7%	17	100%	Not Applicable[d]					
EMS	2	1%	2	100%	Not Applicable[d]					
Other Measures[c]	44	19%	17	39%	Unknown[e]				0	0%
Total	396		70		150		172		4	

Notes:

[a.] Respondents who indicated received rebates or free lighting in the case of lighting upgrades or those who indicated paying more for their upgrades are assumed to have purchased energy equipment that are most likely energy-efficient.

[b.] Composed of respondents who did not complete the measure verification follow-up survey and neither received rebates or free lighting nor paid more

[c.] Includes insulation, cool roof, and plastic film for windows, which are energy-efficient by default.

[d.] Measure is energy-efficient by default

[e.] Not enough data available to determine

[f.] Total n count by measure

Table 34. Planned Purchase of Energy-Related Equipment by Business Sector and Measure Type (Multiple Response)

Measures	Food, Liquor, & Non-Office Health Care[b]		Ag-Industrial[c]		Office, Retail, Misc.[d]		Overall	
	Count	% (n=74)	Count	% (n=114)	Count	% (n=255)	Count	% (n=443)
Any Energy-Related Equipment	**37**	**50%**	**53**	**46%**	**117**	**46%**	**207**	**47%**
Lighting	29	39%	36	32%	88	35%	**153**	**35%**
Cooling	10	14%	9	8%	31	12%	**50**	**11%**
Refrigeration	26	35%	8	7%	12	5%	**46**	**10%**
Heating	6	8%	6	5%	25	10%	**37**	**8%**
Motors	5	7%	15	13%	13	5%	**33**	**7%**
VSD/VFD	1	1%	10	9%	8	3%	**19**	**4%**
EMS	5	7%	2	2%	11	4%	**18**	**4%**
Other Energy Measures[a]	5	7%	9	8%	13	5%	**27**	**6%**

[a.] Other Energy Measures include envelope measures such as windows, insulation, doors, solar panels and programmable thermostats.
[b.] Stratum 1, includes Food and Liquor, Health Care Clinics, Hotel, and Restaurant sectors
[c.] Stratum 2, includes Agriculture, Industrial, and Warehouse
[d.] Stratum 3, includes Medical Office, Office (in general), Retail, and Miscellaneous sectors

Table 35. Financed Project Costs, Measure and Finance Types

Loan/Cost Range	% (n=18)	Cost/Loan Amount	Measure Types	Finance Type
$1 to under $5,000	28%	$1,450.00	LED lights for fish tanks; Portable air conditioner; Pumps for Fish tanks; Attic Fans; Exhaust Fan	Credit Card
		$1,600.00	LED Floodlights for Parking Lot	Credit Card
		$2,500.00	Refrigeration	Small Business Dev Loan
		$2,550.00	Cooling	Bank loan
		$3,000.00	LED lighting	Bank loan
$5,000 to under $10,000	6%	$5,100.00	Cooling and heating	Financing on mortgage
$10,000 to under $50,000	44%	$11,900.00	Lighting	Don't Know
		$11,900.00	Lighting	Bank loan
		$14,800.00	Lighting, refrigeration, and deep fryer	Bank line of credit
		$15,000.00	Well water pump motor	Bank line of credit
		$20,000.00	LED lighting, refrigeration, new ice machine, split unit heat pump	Bank loan
		$25,500.00	Motors	Don't Know
		$30,000.00	Lighting, Refrigeration	OBF
		$47,500.00	Pump motor for water well	Bank line of credit
$50,000 to under $100,000	6%	$60,350.00	Lighting, motors, VSDs	Financing through contractor
Don't Know/Refused	17%		Cooling, refrigeration, motors, VSDs	Lease
			Refrigeration	Don't Know
			Lighting	Lease

Table 36. Project Cost by Measure and Stratum (Financed and Non-Financed Projects)

Stratum	Measure Type	n	Average[b]	SD[c]
Food, Liquor, & Non-Office Health Care	Cooling	5	$17,889	$25,576
	Refrigeration	21	$6,531	$12,727
	Heating	1	$2,556	$0
	Motors for Pumping	2	$2,556	$0
	Lighting[a]	28	$1,643	$2,464
	VSD/VFD	-	-	-
	EMS	-	-	-
	Solar	-	-	-
Ag-Industrial	Solar	8	$199,117	$136,061
	VSD/VFD	10	$32,455	$66,035
	Motors for Pumping	12	$20,231	$24,748
	Heating	3	$7,099	$5,410
	Cooling	7	$6,206	$9,158
	Lighting[a]	21	$4,543	$12,931
	Refrigeration	7	$3,772	$4,450
	EMS	-		
Office, Retail, Misc.	Cooling	15	$14,538	$19,362
	Heating	9	$13,819	$18,788
	VSD/VFD	1	$10,222	$0
	EMS	2	$10,222	$0
	Refrigeration	8	$5,537	$8,687
	Lighting[a]	67	$2,721	$7,553
	Motors for Pumping	8	$2,449	$3,234
Overall	Solar	13	$147,040	$133,999
	VSD/VFD	11	$30,434	$63,004
	Cooling	27	$12,998	$18,446
	Motors for Pumping	22	$12,158	$20,155
	Heating	13	$11,402	$15,991
	EMS	2	$10,222	$0
	Refrigeration	36	$5,773	$10,593
	Lighting[a]	116	$2,791	$8,008

Notes:
[a]. Excludes SBs that received free lighting
[b]. Average cost based on valid responses only
[c]. Note the standard deviations are large and the n small in many categories. This indicates considerable uncertainty around the estimates.

Table 37. Snapshot of SBs that Used Financing for Energy-Related Upgrades (n=9 in-depth interview respondents)

Business Name[a]	Business Sector	Financed Project Scope	Purpose of Upgrades	Project Amount[b]	Type of Financing	Loan Details	Selection Criteria for EE Equipment
Citrus Farming Company	Agriculture	• Motors	Drought related upgrades	$47,500	Bank Line of Credit	**Lender:** Farm Credit West **Interest Rate:** 4.5% **Loan/Lease Term:** Revolving, trying to pay off by end of year **Underwriting Criteria:** Not Applicable (Revolving Loan)	• Based on contractor's recommendation
Wofford Heights Grocery	Food and Liquor	• Lighting • Refrigeration	To save money on utility bill per contractor solicitation	<$30,000	OBF	**Lender:** Not Applicable **Interest Rate:** Not Applicable **Loan/Lease Term:** Not Applicable **Underwriting Criteria:** Not Applicable	• Energy saving
Savory Restaurant	Restaurant	• Lighting • Refrigeration	Retrofitted entire space to build new restaurant	$20,000	Bank Loan	**Lender:** First Northern **Interest Rate:** 6% **Loan/Lease Term:** 7 years **Underwriting Criteria:** Credit score	• No response
Farmville Farming Company	Agriculture	• Motors	Equipment needed to be replaced	$15,000	Bank Line of Credit	**Lender:** Farm Credit West **Interest Rate:** 4% **Loan/Lease Term:** Revolving, trying to pay off in three years **Underwriting Criteria:** Not Applicable (Revolving Loan)	• Efficiency level
BBQ Restaurant	Restaurant	• Lighting • Refrigeration • Deep Fryer	Retrofitted newly purchased business in leased workspace	$14,800	Bank Line of Credit	**Lender:** Bank of the West **Interest Rate:** Don't know **Loan/Lease Term:** 10 years **Underwriting Criteria:** Credit score, Financials	• Functionality (of lighting and refrigeration) • Efficiency level (of fryer)
Happy Pet Hotel	Misc.	• Lighting	Retrofitted workspace to divide in sections	$3,000	Bank Loan	**Lender:** Bank of the West **Interest Rate:** 4.5% **Loan/Lease Term:** 5 years **Underwriting Criteria:** Credit score	• Efficiency level
Mariposa Froyo	Restaurant	• Refrigeration	Retrofitted newly opened restaurant	$2,500	SBDC	**Lender:** Mariposa County Small Business Development Loan **Interest Rate:** 5% **Loan/Lease Term:** 5 years **Underwriting Criteria:** Business Plan, Financials	• Compatibility with workspace
Industrial Property Company	Industrial	• Lighting	Improve safety features of facility to prevent injuries	$1,600	Credit Card	**Lender:** Chase **Interest Rate:** 15% **Loan/Lease Term:** Not Applicable **Underwriting Criteria:** Not Applicable	• Compatibility with work space • Preference
The Pet Store Company	Retail	• Lighting • Cooling • Motors	• Retrofitted new retail location • To save money on utility bill	$1,450	Credit Card	**Lender:** Capital One **Interest Rate:** 18% **Loan/Lease Term:** Not Applicable **Underwriting Criteria:** Not Applicable	• Wattage

Note:[a.] For reporting purposes, the Evaluation Team created business names in place of the actual business names to maintain respondent anonymity.
[b.] While some businesses reported the total loan amounts secured for their whole retrofit, amounts reported in this table are amounts that went toward energy-related upgrades.

B. Appendix: Firmographics

Table 38. Respondent Small Businesses Firmographic Characteristics

Firmographics	% (n=443)
Which of the following best describes the ownership of this location?	
My company rents the space and we run a business here.	58%
My company owns the space and we run a business here.	33%
My company owns this space but it is rented to another business.	6%
My company owns the space, we run a business here, and also rent to other businesses.	1%
Other	1%
Refused	0.5%
Does your company pay the electric bill for this location?	
Yes	59%
No	2%
Not Applicable	39%
Does your company pay the gas bill for this location?	
Yes	39%
No	7%
Don't know	1%
We do not use gas for anything at this location	14%
Not Applicable	39%
How many locations does your company have or manage in California?	
>100	0.5%
1-10	84%
11-20	4%
21-30	1%
31-40	1%
41-50	0.5%
51-60	1%
61-70	0.2%
91-100	0.5%
Don't know	8%
Refused	1%
What is the approximate number of employees at this location?	
Less than 10	65%
10-49	22%
50-99	2%
100-249	1%
250-499	0.2%
Don't know	1%

Firmographics	% (n=443)
Refused	2%
Not Applicable	6%
What is the approximate number of employees in your business overall?	
Less than 10	11%
10-49	10%
50-99	3%
100-249	2%
250-499	2%
500 or more	3%
Don't know	2%
Refused	1%
Not Applicable because the business does not have more than 1 location	66%
Approximately how old is the building at this address?	
Less than 2 years	0.2%
2-4 years	0.7%
5-9 years	2%
10-19 years	11%
20-29 years	14%
30 years or more	58%
Don't know	14%
Refused	0.5%
What is the approximate square footage of space at this business location?	
Less than 1,000 square feet	9%
1,000 to under 5,000 square feet	42%
5,000 to under 10,000 square feet	15%
10,000 to under 50,000 square feet	15%
50,000 to under 100,000 square feet	2%
100,000 square feet or more	3%
Don't know	14%
Refused	1%
Does this location have central air conditioning?	
Yes	65%
No	35%
Don't know	0.5%
Is this location primarily heated by electricity or gas?	
Electricity	36%
Gas	41%
Electricity and gas	2%
Neither: no heat	14%
Other	0.5%

Firmographics	% (n=443)
Don't know	5%
Refused	0.5%
Does this location have an electric or gas water heater?	
Electric	29%
Gas	38%
Electric and gas	2%
Propane	0.5%
Neither: no hot water	20%
Other	0.5%
Don't know	10%
Refused	0.2%
Does this location contain any type of cooking equipment?	
Yes - large commercial kitchen	11%
Yes - small kitchen in an office	31%
No	57%
Don't know	1%
Is the cooking equipment gas or electric?	
Gas	8%
Electric	1%
Gas and Electric	2%
Not Applicable	89%
Does this location contain any type of refrigeration equipment, other than an office refrigerator?	
Yes	28%
No	72%
Don't know	0.2%
Is the approximate annual revenue at this location less than $7.5 million dollars?	
Yes	79%
No	7%
Don't know	7%
Refused	1%
Not Applicable	6%
Is the approximate annual revenue for your overall business less than $7.5 million dollars?[a]	
Yes	23%
No	7%
Don't know	3%
Refused	1%
Not Applicable	66%

Note:
[a.] Asked of businesses with multiple locations

C. Appendix: Survey Instruments

The following data collection instruments are presented in this section:

- Telephone Survey Instrument
- In-depth Interview Guide
- Online Verification Survey Instrument

Telephone Survey Instrument

Opinion Dynamics

Non-Residential Finance Market Baseline Phone Survey Draft
April 2017

DESCRIPTION OF STUDY

The purpose of this study is to assess key metrics related to energy efficiency financing for small business (SB) customers in California. The results of this study will serve as a market baseline of energy efficiency financing prior to the introduction of the Small Business Statewide Finance Pilots ("the Pilots") expected in 2017. By providing baseline estimates of several key metrics for the period prior to the introduction of the Pilots, the results of this study will offer points of comparison against which future research can assess the impact of the Pilots.

This survey will capture information about energy-related equipment upgrades, awareness of financing options, and use of financing among small business customers. Table 1 provides detail regarding the survey structure and the key research questions to be answered through this survey instrument. The survey will identify candidates for follow-up web verification and/or in-depth interviews. Respondents who say they upgraded equipment will have an added internet verification component to help determine whether upgrades were energy efficient or not. Respondents who say they made upgrades and used financing, will be asked to participate in a follow-up in-depth interview to gather more information about both the upgrades and the financing that was used.

SURVEY TOPICS AND CORRESPONDING RESEARCH QUESTIONS

Table 1. Survey Structure

Topic Area	Information Gained
Business & Respondent Characteristics	• Business type • Information regarding SBA size standards • Building size and age • Respondent's position within the business
Energy efficient upgrades	• What % of SBs completed an energy-related upgrade, and what % of those completed an efficient upgrade within the last 2 years? (a subset will be asked to provide verification photos to be uploaded to the project web site) • What was the magnitude of these upgrades? (also a portion to be verified by verification photos)
Current use of financing	• Of the SBs that completed an energy-related upgrade within 2 years, what percent used financing? • Of the SBs that completed an energy efficient upgrade within 2 years, what percent used financing?
Perceived barriers	• What is the likelihood that SB customers will upgrade equipment in the next 2 years? • What is the likelihood that SB customers would seek financing? Does the likelihood differ depending on the project cost? • What are the barriers to seeking financing and do they differ depending on the project cost?

Topic Area	Information Gained
Awareness of financing	• Are SB customers aware of what financing options are available for energy efficient upgrades?

SAMPLE VARIABLES

< IOU >	IOU which services the customer
< ADDRESS >	Site address from CIS database
< BUSINESS_TYPE >	Business type from CIS database

INTRODUCTION

PART I: Business Module

Hi, this is _____ calling on behalf of the California Public Utilities Commission, or the CPUC. I'm looking to speak with the person responsible for making decisions about the replacement of energy using equipment.

THIS IS NOT A SALES CALL NOR A SERVICE CALL. We are conducting research to help the CPUC and [IOU] develop programs to help businesses save energy.

Just to confirm, you are responsible for making financial decisions regarding the replacement of energy using equipment at this location.

(IF RENTER OFFERS LANDLORD: "We are looking to speak with renters who may make decisions about equipment such as lighting")
(IF NEEDED: This survey will take 10-15 minutes.)

SC1 .Are you currently talking to me on a regular landline phone or a cell phone?
1. Regular landline phone
2. Cell Phone
8. (Don't know)
9. (Refused)

[ASK IF SC1 = 2; ELSE GO TO SURVEY START]
SC2. Are you currently in a place where you can talk safely and answer my questions?
1. Yes
2. No **[SCHEDULE CALL BACK]**
8. (Don't know) **[SCHEDULE CALL BACK]**
9. (Refused) **[TERMINATE]**

SCREENERS/FIRMOGRAPHICS

I'd like to start with a few general questions about your company. For this survey, I would like you to think about your facility at **<ADDRESS>**.

[SKIP IF BUSINESS TYPE = NA]
BC1. According to our records, this business is in the **< BUSINESS_TYPE >** sector. Is that correct?
1. Yes
2. No
8. (Don't know)
9. (Refused)

2

[SKIP IF BC1 = 1]
BC2. How would you describe the main business ACTIVITY at the facility at **<ADDRESS>**? (DO NOT READ; PROBE IF NECESSARY)

01. (Food/Liquor: grocery/liquor/convenience) [Note that a convenience store with a gas station attached should be classified here]
02. (Lodging: hotel/rooms)
03. (Health Care – Care, non-hospital/assisted living facilities/nursing homes/retirement communities)
04. (Restaurant/Food Service)
05. (Industrial: food processing plant, manufacturing)
06. (Agricultural: farms, greenhouses)
07. (Retail Stores)
08. (Offices, non-medical)
09. (Health Care – Medical office)
10. (Public Assembly: church, gym, theatre, library, museum, convention center, amusement park)
11. (Services: beauty salon/spa, gas station, auto repair)
12. (Laundry: Coin Operated, Commercial Laundry Facility, Dry Cleaner)
13. (Warehouse)
14. (Education/school) **[THANK AND TERMINATE]**
15. (Condo Assoc./Apartment Mgr) **[THANK AND TERMINATE]**
16. (Public Service: fire/police/postal/military/government) **[THANK AND TERMINATE]**
17. (Hospital/health services) **[THANK AND TERMINATE]**
00. (Other: Specify)
98. (Don't know)
99. (Refused)

BC2a. How many buildings does your business occupy at this location?

1. (One)
2. (More than one)
6. (None/Zero) **[THANK AND TERMINATE]**
8. (Don't know) **[THANK AND TERMINATE]**
9. (Refused) **[THANK AND TERMINATE]**

[READ IF BC2A = 2]
For the purposes of this survey, please think about just the largest building at this location.

BC3. What is your job title **[OPEN END]**

BC3a. Could I get your first name in case we need to call back to clarify any information? **[OPEN END]**

BC4. Which of the following best describes the ownership of this location?

01. My company owns the space and we run a business here. **[SKIP TO BC7]**
02. My company owns this space but it is rented to another business. **[SKIP TO BC7]**
03. My company rents the space and we run a business here.
00. Other **[SPECIFY]**
98. (Don't know)
99. (Refused)

[ASK IF BC4 > 2]
BC5. Does your company pay the electric bill for this location?

1. Yes

3

2. No
8. (Don't know)
9. (Refused)

[ASK IF BC4 > 2]
BC6. Does your company pay the gas bill for this location?
1. Yes
2. No
3. (We do not use gas for anything at this location)
8. (Don't know)
9. (Refused)

BC7. How many locations does your company have or manage in California?
[NUMERIC OPEN END – 1-9997]
9998. (Don't know)
9999. (Refused)

[SKIP IF VERIFIED BUSINESS=AGRICULTURE]
BC7a. Is the business at <ADDRESS> location a franchise?
1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP IF BC4=2]
BC8. What is the approximate number of employees at **this** location?
1. (Less than 10)
2. (10-49)
3. (50-99)
4. (100-249)
5. (250-499)
6. (500 or more)
8. (Don't know)
9. (Refused)

[ASK if BC4=2 or BC7>1 but not 9998 or 9999]
BC8a. What is the approximate number of employees in your business overall?
1. (Less than 10)
2. (10-49)
3. (50-99)
4. (100-249)
5. (250-499)
6. (500 or more)
8. (Don't know)
9. (Refused)

BC9. Approximately how old is the building at <ADDRESS>?
1. (Less than 2 years)
2. (2-4 years)
3. (5-9 years)

4

4. (10-19 years)
5. (20-29 years)
6. (30 years or more)
8. (Don't know)
9. (Refused)

BC10. What is the approximate square footage of the space [IF BC4 = 1 or 3 read "that your business occupies"; IF BC4 = 2 read "that you own"] at this location? (Probe with options if they don't know)
1. (Less than 1,000 square feet)
2. (1,000 to under 5,000 square feet)
3. (5,000 to under 10,000 square feet)
4. (10,000 to under 50,000 square feet)
5. (50,000 to under 100,000 square feet)
6. (100,000 square feet or more)
8. (Don't know)
9. (Refused)

BC11. Does this location have central air conditioning?
1. Yes
2. No
8. (Don't know)
9. (Refused)

BC12. Is this location primarily heated by electricity or gas?
01. Electricity
02. Gas
03. (Neither: no heat)
00. (Other: specify)
98. (Don't know)
99. (Refused)

BC13. Does this location have an electric or a gas water heater?
01. Electric
02. Gas
03. (Neither: no hot water)
00. (Other: specify)
98. (Don't know)
99. (Refused)

BC14. Does this location contain any type of cooking equipment? **[PROBE FOR WHETHER THIS IS A LARGE COMMERCIAL KITCHEN, VERSUS A SMALL OFFICE KITCHEN WITH A FRIDGE AND MICROWAVE, ETC]**
1. (Yes – large commercial kitchen)
2. (Yes – small kitchen in an office)
3. (No)
8. (Don't know)
9. (Refused)

[ASK IF BC14 = 1]
BC14a. Is the cooking equipment gas or electric?

01. Electric
02. Gas
00. (Other: specify)
98. (Don't know)
99. (Refused)

BC14b. Does this location contain any type of refrigeration equipment, other than an office refrigerator?
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

[SKIP IF BC4=2]
BC15. Is the approximate annual revenue at this location less than $7.5 million dollars? **[IF NEEDED: THIS INFORMATION IS COMPLETELY CONFIDENTIAL. ITS ONLY PURPOSE IS TO ALIGN OUR STUDY WITH INDUSTRY DEFINITIONS OF SMALL AND MEDIUM BUSINESSES. MANY OF THESE DEFINITIONS ARE BASED ON ANNUAL REVENUE.]**
1. Yes
2. No
8. (Don't know)
9. (Refused)

[ASK IF BC4=2 or BC7>1 but not 9998 or 9999]
BC15b. Is the approximate annual revenue for your overall business less than $7.5 million dollars? **[IF NEEDED: THIS INFORMATION IS COMPLETELY CONFIDENTIAL. ITS ONLY PURPOSE IS TO ALIGN OUR STUDY WITH INDUSTRY DEFINITIONS OF SMALL AND MEDIUM BUSINESSES. MANY OF THESE DEFINITIONS ARE BASED ON ANNUAL REVENUE.]**
1. Yes
2. No
8. (Don't know)
9. (Refused)

AWARENESS OF FINANCING OPTIONS
AF1. The next set of questions relates to financing options available to businesses. Are you aware of any financing options that businesses can use to make energy saving improvements to their business?
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

[ASK IF AF1=1]
AF1A. What financing options are you aware of? **[IF NEEDED: WE ARE INTERESTED IN WHAT YOU WOULD USE TO FINANCE ENERGY SAVING IMPROVEMENTS, NOT THE TYPES OF IMPROVEMENTS YOU COULD MAKE]** (NOTE: DO NOT READ LIST)
01. (PACE financing / Property Assessed Clean Energy)
02. (On-Bill Financing / OBF)
03. (Lending through a bank / Unsecured or secured loan)
04. (Line of credit from a bank)
05. (Credit cards)
00. (Other: SPECIFY)

6

98. (Don't know)
99. (Refused)

[SKIP IF AF1A = 1]
AF3. Property Assessed Clean Energy or PACE is a municipal government loan for energy efficiency or renewable energy upgrades for businesses. These loans are typically repaid over 15 to 20 years via an annual assessment on the property tax bill. Before today, had you ever heard of Commercial PACE loans?
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

[SKIP IF AF1A = 2]
AF4. On-Bill Financing or OBF is a utility-administered interest-free loan for energy efficiency or renewable energy upgrades for businesses. These loans are repaid over a period of up to five years via your energy bill. Before today, had you heard of OBF?
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

AF5. Before today, had you heard of **energy-efficiency specific** lending through a bank, contractor, builder, or other entity? These loans have energy-related requirements for the type of equipment that is installed.
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

AF6. Before today, had you heard of equipment financing or leasing. This offers customers a leasing option for installing and using energy-using equipment such as HVAC systems, boilers or chillers.
1. (Yes)
2. (No)
8. (Don't know)
9. (Refused)

PART II: EQUIPMENT MODULE

ENERGY EFFICIENCY UPGRADES IN PAST TWO YEARS

EQUIPMENT DETAIL
EU1. Next, we would like to talk about purchases or upgrades your company has made to energy using equipment at this location in the past two years. In the past two years, has your company purchased any....**[1 = YES, 2 = NO, 8 = DON'T KNOW, 9 = REFUSED]**
a. Lighting equipment (IF NECESSARY: This could include light bulbs, lamps, fixtures, motion sensors, and other types of equipment)
[SKIP IF BC4 = 3] b. Cooling equipment (IF NECESSARY: This could include central air conditioning systems, chillers, and other types of equipment)

7

[SKIP IF BC4 = 3] c. Heating equipment (IF NECESSARY: This could include furnaces, boilers, infrared heaters and other types of equipment. Note that heat pumps and packaged terminal air conditioner units are for both cooling and heating)
[ASK IF BC14b = 1] d. Refrigeration equipment (IF NECESSARY: This could include equipment types such as walk-in or reach-in coolers and freezers)
[SKIP IF BC4 = 3] e. Motors for pumping or fan equipment
[SKIP IF BC4 = 3] f. Variable speed drives, also known as VSDs and VFDs
[SKIP IF BC4 = 3] g. Energy management systems (EMS) or demand controlled ventilation (DCV)
[SKIP IF BC4 = 3] h. Solar panels

[ASK IF EU1A-H ALL =8 or 9]
EU1B. What is the name and contact information of the person in your company who could answer this question? [OPEN END NAME PHONE EMAIL, 98=DK, 99=REF] [SKIP TO CALCULATIONS BEFORE L1]

EU1_o. Did you make any additional purchases **[IF BC9 <> 1** "or upgrades" **]** ? This may include building envelope improvements such as insulation, window replacement, and roof replacement. [IF YES, what are these categories and improvements?]
00. Yes **[SPECIFY]**
96. No
98. Don't know
99. Refused

[CALCULATE FL_UPGRADE=1 IF ANY EU1A-H OR EU1_O=00; else 0]
[SKIP TO L1 IF UPGRADE_FL=0]
PRELIMINARY ENERGY EFFICIENT STATUS
[ASK IF EU1_a = 1]
EU2a. Did your company's new lighting include any of the following: linear fluorescents (specifically T5 or T8 bulbs), CFLs, LEDs, sensors, or controls?
1. Yes
2. No
8. Don't know
9. Refused

[ASK IF EU1_a = 1]
EU2aa. Thinking about the changes you made to your building's lighting, did you replace existing light bulbs and/or install new bulbs or did you make a bigger change?
1. Replaced/Changed Bulbs
2. Bigger Change
8. (Don't know)
9. (Refused)

[ASK IF EU1a = 1]
EU2b. Do you recall if this lighting equipment was more energy efficient than other options available to you at the time?
1. Yes
2. No
8. (Don't know)
9. (Refused)

8

[ASK IF EU1b = 1]

EU3a. What is the efficiency rating of your company's new cooling equipment? **[FOR INTERVIEWER: THIS SHOULD BE LISTED ON THEIR COOLING EQUIPMENT'S LABEL] [NUMERIC OPEN END; 9998 = "Don't know", 9999 = "Refused]**

[ASK IF EU1b = 1 AND EU3a<> 9998 or 9999]

EU3aa. What is the unit of this rating? [READ LIST IF NEEDED]

01. (SEER (Seasonal Energy Efficiency Ratio))
02. (EER (Energy Efficiency Ratio))
03. (COP (Coefficient of Performance))
04. (Kw per ton)
8. Don't know
9. Refused

[ASK IF EU1c = 1]

EU4a. What is the AFUE rating on your company's new heating equipment? **[NUMERIC OPEN END; 9998 = "Don't know", 9999 = "Refused] [IF NEEDED: AFUE STANDS FOR ANNUAL FUEL UTILIZATION EFFICIENCY AND DESCRIBES THE EFFICIENCY OF YOUR HEATING SYSTEM. IT IS A PERCENTAGE; TYPICAL VALUES RANGE FROM 45% to 100%]**

[ASK IF EU1d= 1]

EU5a. Did your new refrigeration equipment include any items such as LED case lights, ENERGY STAR rating, curtains, door controls, or other energy saving features?

1. Yes
2. No
8. Don't know
9. Refused

[ASK FOR EACH (EU1a-e = 1)]

EU6A-E. Did you pay more for the **[EQUIPMENT FROM EU1A-E]** equipment because it was energy efficient?

1. Yes
2. No
8. Don't know
9. Refused

[ASK FOR EACH (EU1a-h = 1)]

EU7A-H. [IF NON-LIGHITNG READ:]Did your company receive a rebate for the **[EQUIPMENT FROM EU1A-H]** equipment from [IOU]?
[IF LIGHTING READ] Did your company receive a rebate or free lighting equipment from [IOU]?

1. Yes
2. No
8. Don't know
9. Refused

CURRENT USE OF FINANCING

[LOOP FIN1_NEW TO FIN3A FOR EACH meas_id = 1]

FIN1_NEW. What was the total cost of the <meas_id> equipment ... (READ LIST AS NEEDED)

0. $0

9

01. $1 to under $5,000
02. $5,000 to under $10,000
03. $10,000 to under $50,000
04. $50,000 to under $100,000
05. $100,000 to under $250,000
06. $250,000 to under $1 million
07. Over $1 million?
8 (Don't know)
9. (Refused)

[SKIP TO NEXT MEASURE IF FIN1_NEW=0]
FIN2. Did your company use any financing to pay for the <meas_id> equipment? By financing, we mean using funding sources other than your own available cash on hand to pay for the project. This includes using credit cards, revolving business lines of credit, any types of bank or credit union loans, etc.
1. Yes
2. No **[SKIP TO NEXT MEASURE]**
8. Don't know
9. Refused

[ASK IF FIN2 = 8, 9]
FIN2a. What is the name and contact information of the person in your company who could answer this question? [OPEN-END]; 98 = Don't Know; 99 = Refused **[SKIP TO L1]**

[ASK IF FIN2 = 1]
FIN3. What type of financing did you use for your <meas_id> project? [READ LIST IF NEEDED, CHECK ALL THAT APPLY]
01. (A credit card)
02. (Financing through your contractor)
03. (Financing through a retailer **[FOR INTERVIEWER: for example, taking a store loan from SEARS to buy an appliance]**)
04. (A secured loan from a bank) **[FOR INTERVIEWER: a loan with collateral]**)
05. (An unsecured loan from a bank) **[FOR INTERVIEWER: a loan without providing anything as collateral])**
06. (A line of credit from a bank)
07. (Equipment leasing) **[FOR INTERVIEWER: the owner of the equipment allows the business to use the equipment in exchange for periodic payments]**
08. (Property Assessed Clean Energy (PACE) Financing **[FOR INTERVIEWER: when payments are made through property taxes]**)
09. (On-bill Financing) **[FOR INTEVIEWER: when payments are made through utility bills]**
00. (Any other type of financing) **[SPECIFY]**
98. (Don't know)
99. (Refused)

[ASK IF FIN3_1 = 1]
FIN3a. Did you pay off the amount of the project within 1 month of charging it to the credit card?
1. Yes
2. No
8. Don't know
9. Refused

10

[GENERATE VARIABLE CONV_FINANCE ACCORDING TO THE FOLLOWING LOGIC: IF FIN3_ or FIN3b_<meas_id> = 1,2,3,4,5,6,7 CONV_FINANCE = 1, ELSE CONV_FINANCE = 0]}

Generate new variables:

any_finance	If any FIN2_* = 1, any_finance = 1, 0 otherwise
any_pace	If any FIN3_* = 8, any_pace = 1, 0 otherwise
any_obf	If any FIN3_* = 9, any_obf = 1, 0 otherwise
any_conventional	If any conv_finance_* = 1, any_conventional = 1, 0 otherwise

LIKELIHOOD TO SEEK FINANCING, UPGRADE BARRIERS, FINANCING-SPECIFIC BARRIERS

L1. In the next two years would your company consider purchasing any of the following equipment for this location? **[YES/NO; 6 = NA/DON'T USE THAT EQUIPMENT, 8 = DON'T KNOW, 9 = REFUSED]**

a. Lighting equipment
[SKIP IF BC4 = 3] b. Cooling equipment
[SKIP IF BC4 = 3] c. Heating equipment
[SKIP if BC14b ~=1] d. Refrigeration equipment
[SKIP IF BC4 = 3] e. Motors for pumping or fan equipment
[SKIP IF BC4 = 3] f. Variable speed drives
[SKIP IF BC4 = 3] g. Energy management systems (EMS) or demand controlled ventilation (DCV)
h. Are there any other types of equipment that your company may replace or upgrade? **[OPEN END; 98=DK 99=REFUSED]**

L3_NEW. For this question, please use a scale that ranges from 1 to 5 where 1 is 'Not at all likely' and 5 is "Extremely likely'. [IF ALL **L1a-h =2,8,9** If you needed to replace energy using equipment at this location, how likely would you be to] **[IF ANY L1a-h =1** When you replace energy using equipment, how likely are you to] purchase energy efficient equipment that saves energy but costs more versus standard efficiency equipment?

8. (Don't know)
9. (Refused)

[ASK IF QL3_NEW=1,2,3,4,8,9]
L3_NEWa. I'm going to read some reasons why you might install standard efficiency equipment instead of energy efficient equipment. After each one, please tell me if that is a reason why you might choose to install standard efficiency equipment instead of energy efficient equipment. **(1 = YES; 2 = NO; 8 = DK; 9 = REFUSED) [ROTATE]**

A. Energy efficient equipment costs too much
F. Energy efficient equipment isn't always in stock
C. Energy efficient equipment usually does not save enough energy to justify the higher costs
D. Energy efficient equipment does not perform as well as standard efficiency equipment
E. What are some other reasons why you might install standard efficiency equipment instead of energy efficient equipment?

[ASK IF QL3_NEW=1,2,3,4,8,9]
L4a_NEW. If there were small business financing options available that helped you pay the increased costs of energy efficient equipment, would you be more likely to consider purchasing energy efficient piece of equipment instead of standard efficiency equipment?
1. (Yes)

2. (No)
8. (Don't Know)
9. (Refused)

[IF QL3_NEW=5]
L4b_NEW. Would you consider financing when purchasing new energy efficient equipment?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK IF QL4a_NEW=2 OR QL4b_NEW=2]
L5_NEW. I'm going to read a few reasons why a small business owner wouldn't want to pursue financing options for energy efficient equipment. Please respond Yes or No to each option as it applies to you (1 = YES; 2 = NO; 8 = DK; 9 = REFUSED) [ROTATE]
A. I don't want additional debt so I'd pay cash
B. Applying for financing is too much of a hassle
C. I worry that my business would not qualify for financing
D. I'm not interested in paying more money for energy efficient equipment
E. I'm not sure where I could find this kind of financing
F. What are some other reasons why a small business might not use financing for energy efficient equipment? [OPEN END]

[ASK IF QL4a_NEW=1,8 OR QL4b_NEW=1,8]
L6_NEW. As mentioned previously, A PACE loan is a type of loan that is repaid through property taxes. Would you consider a PACE loan when purchasing energy using equipment?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK IF QL4a_NEW=1,8 OR QL4b_NEW=1,8]
L7_NEW. On-Bill financing or repayment again is a type of loan that is repaid through your utility bill. Would you consider on-bill financing when purchasing energy using equipment?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

CONCLUSION

Those are all the questions I have today. Thank you for your participation in this study.

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In-depth Interview Guide

California Public Utilities Commission
2017 Non-Residential Finance Baseline Study
Non-Residential Baseline In-Depth Interview Guide

May 2017

Name of Interviewee: _____ Date: _____

Title: _____ Company: _____

The 2017 Non-Residential Finance Baseline Study currently underway has two main data collection components: (1) a quantitative baseline survey to gather key finance-related market metrics and (2) in-depth interviews with targeted businesses who have used financing in the last two years to purchase energy-related equipment. This data collection instrument will guide interviews with a subset of small business owners who have upgraded energy-related equipment and used some form of financing. This subset will be identified through the non-residential finance baseline quantitative survey fielding between April and June 2017.

While the larger non-residential finance baseline study contains broader goals, the specific purpose of these interviews is to obtain detailed information about the upgrades performed, the type of financing used, and the decision-making process.

Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the degree of familiarity that the individual has with the topic. The interviews will be audio taped and transcribed. Prior to conducting the interview, the interviewer will review the respondents' quantitative survey data and be familiar with the nature of the business they run, whether they own their work space, and what type of equipment upgrades they completed within the last two years.

Guide Variables

<CONTACT> Contact name

<BUS_NAME> Business name

<ADDRESS> Business address

<N_MEASURES> Number of measures replaced/updated

<TENURE> Indicator for whether respondent rents or owns facility space

***Equipment Variables**: Prior to conducting the interview, we will create a table summarizing the following information for each equipment upgrade:*

opiniondynamics.com Page 1

Measure Upgraded <MEAS>	Cost of the Upgrade <COST>	Type(s) of Financing Used

Introduction

Advise interviewee that the interviews will be audio taped and transcribed.

Hi, this is _____ from Opinion Dynamics Corporation, calling on behalf of the California Public Utilities Commission, or the CPUC. May I please speak with <CONTACT>?

You recently participated in a survey with us regarding changes or upgrades your business made to energy using equipment in the past two years. During the survey, you told us that your company used financing to help pay for the new equipment. We would like to conduct a follow-up interview with you so we could learn more about the equipment and the financing your business used. During the interview we may ask for specific information regarding the equipment you purchased that may help us determine if the equipment is energy efficient. We may also ask for photos of the equipment or its packaging. We understand that your time is valuable so we will give you a $100 Pre-Paid Gift Card as a token of appreciation if you would be willing to answer some additional questions about your equipment and use of financing.

S1. First, can you confirm that you can answer detailed questions about the decision to purchase the new equipment and the financing that was used?

1. Yes **[CONTINUE]**
2. No **[ASK FOR THE CORRECT CONTACT]**

S1. What would you describe as your business sector? [COMPARE AGAINST THE SECTOR LABEL IN DATA]

Confirm Installed Measures and Financing

C1. I'd like to start by confirming some information that you provide in the survey about equipment upgrades that you made in the last two years at **<ADDRESS>**, along with the cost of each one. According to your responses, within the last two years you upgraded your **<MEAS>** equipment at a cost of **<COST>**. Is this correct? **[IF YES, NOTE Y IN BOTH COLUMNS, IF NOT, PROBE FOR CORRECT INFORMATION]**. Of the **<COST>** spent on **<MEAS>**, how much was financed? **[LOOP THROUGH FOR EACH <MEAS>]**

[IF NEEDED: by "financed" we mean how much of the upgrade was paid for by means other than on-hand cash]

Measure on Record **<MEAS>**	Confirmed Measure Installation (Y or N)	Cost on Record **<COST>**	Confirmed Cost (Y or correct price)	Dollar Amount or Percentage of Total Cost Financed* **<FIN_AMOUNT>**	Incentive or Rebate from Utility? (insert dollar amount)

Measure on Record **<MEAS>**	Confirmed Measure Installation (Y or N)	Cost on Record **<COST>**	Confirmed Cost (Y or correct price)	Dollar Amount or Percentage of Total Cost Financed* **<FIN_AMOUNT>**	Incentive or Rebate from Utility? (insert dollar amount)

*Note to Interviewer: Be sure that this amount is the net amount financed, after any rebates or cash down.

C2. Were there any other types of equipment installed in the last two years that we haven't discussed?

- **[IF YES]** Was this equipment financed?

[NOTE TO INTERVIEWER: ADD EQUIPMENT AND COSTS TO TABLE IN C1 AS NEEDED]

C3a – C3f. In the next set of questions we will be asking for specific information regarding the energy equipment your company purchased to help us determine if they are energy efficient. We will be asking for information like brand name, model number or name, and if the equipment is ENERGY STAR® rated. If you do not have this information on-hand, we may also send you a link to an online form in which you may enter the information and upload photos of the equipment. Would you be able to provide the information through the phone?

[IF NO] May we send you the online form by email? **[IF YES, RECORD EMAIL ADDRESS. IF NO SKIP TO NEXT SECTION]**

[IF YES PROCEED WITH C3a – C3f] Regarding the **<CONFIRMED MEASURE INSTALLED>**...

[FROM C1] Confirmed Measure Installation including those from C2 (any other)	C3a. What specific measure did you purchase?	C3b. How many of **[C1a]** did you purchase?	C3c. What is/are the brand name/s or product name/s of the **[C1a]** you purchased?	C3d. What is/are the model name or number of the **[C1a]** you purchased?	C3e. May we ask you to send us a picture of the **[C1a]**, its packaging, or even invoice that has the product name/information? You may email it to me at [alias]@opiniondynamics.com	**[ASK IF C3e=No or No Time/Not Now]** C3f. You may also upload the photos online, May we ask for your email address so we can send you a link to the site where you may upload the photos?

Equipment Upgrade Decision-Making

[NOTE TO INTERVIEWER: FOR THE REMAINING SECTIONS, IF THE RESPONDENT UPGRADED MORE THAN ONE PIECE OF EQUIPMENT, PROBE AS NEEDED TO ENSURE ALL INFORMATION IS GATHERED FOR EACH END-USE. SIMILARLY, IF MULTIPLE FINANCING METHODS WERE USED, BE SURE THAT YOU PROBE AS NEEDED FOR EACH FINANCING METHOD.]

We are trying to understand how small businesses make decisions about when to replace equipment. We'd like you to walk us through the decision-making process you used when upgrading your equipment.

U1. First, why did your business decide to do any sort of upgrades/renovations?

Probes **[AS NEEDED]**:

- Was the equipment having problems and in need of replacement, or was the equipment working well and you replaced it for some other reason?
  - [IF OTHER REASON]: What were these reasons?
- **[IF RENTING SPACE]** Was the decision to upgrade that of the business owners, the property owners or both?

U2. Why did you end up doing the particular upgrades/renovations that you did?

Probes **[AS NEEDED]**:

- Did you have specific equipment in mind when you started the upgrade?
- Did you consider any other types of equipment that you decided not install?
  - **[IF YES]**, What other equipment did you consider? Why was it not installed?

U3. How would you describe the process for selecting the energy efficiency level of the equipment?

Probes **[AS NEEDED]**

- Was the efficiency level of the equipment part of the decision-making process for what to select?
- Would you say the equipment you purchased was high, standard or low efficiency?
- Was the efficiency level of the equipment important to you?
- Did you consider similar equipment that was not as energy efficient?

Upgrade Barriers

Ub1. Can you please describe any difficulties you encountered in selecting and installing your equipment? If so, could you describe them?

Probes **[AS NEEDED]**

- Property owner issues (**RENTERS ONLY**)
- Financial issues

Financing Selection Process

[NOTE TO INTERVIEWER: LOOP THROUGH FS1 – FS2 FOR EACH <MEAS>]

FS1. Thinking about your **<MEAS>** equipment, you said you financed approximately **<FIN_AMOUNT>**. I'm interested in some of the details about the financing you used. **[ASK ABOUT EACH OF THE ITEMS IN THE TABLE FOR EACH FINANCING TYPE USED, BE SURE TO EXCLUDE REBATES AS THOSE ARE ASKED ABOUT IN FS2]**

	Method: Loan or Lease	Interest rate (%)/Lease factor	Term of the loan/lease when originated (in months)	Monthly Payment	Loan/ Lease Lender	Underwriting criteria [FICO score, DTI, Utility Payment History, Property Tax Payment History (PACE only)]	Any specific energy-related component?
FIN_METHOD 1							
FIN_METHOD 2							
FIN_METHOD 3							

[NOTE TO INTERVIEWER: FOR FS3 THROUGH FS10, IF MULTIPLE TYPES OF FINANCING WERE USED, BE SURE TO PROBE SO THAT EACH IS COVERED HERE]

FS2. Thinking back to the financing method(s) you used, how and when did you learn about it/them?

Probes **[AS NEEDED]**

- Contractor?
- Their utility?
- The lender?

FS3. From what you can recall, how was the financing presented to you – were any characteristics of the financing (for example, interest rate or monthly payment) discussed more prominently than others? How did this influence your decision?

FS4. What were the primary reasons your business selected [this/these] type(s) of financing instead of paying cash?

FS5. Did you consider using other types of financing? If so, why didn't you use those options?

FS6. If you had not been able to secure financing, do you think that you would have:

- Still purchased the same equipment but paid cash?
- Purchased equipment that was less expensive?
- Not made this upgrade at all?

Probes **[AS NEEDED]**

- [IF PURCHASED EQUIPMENT THAT WAS LESS EXPENSIVE]Ask respondent to elaborate on how financing affected their decision to pursue EE/more costly options.

FS7. Did the financing you receive allow you to increase the scope or cost of the upgrades you made? If so, please explain.

FS8. Are there any other ways in which the financing you received affected the upgrade that you made?

Probes **[AS NEEDED]**

- Would the timeline for the upgrade have been the same?
- Would you have purchased the same equipment?

FS9. Have you heard of Energy Service Agreements?

[IF YES], do you have one? What benefits do you think you are getting from it?

Financing Barriers

FB1. Did you encounter any difficulties obtaining financing? If so, what were they? How did you resolve them?

Probes **[AS NEEDED]**

- Was the paperwork confusing/complicated or straightforward?
- What was the timeframe for approval, and were you satisfied with it?
- How easy or difficult did you feel it was to get approval?

Probes **[AS NEEDED, IF MULTIPLE MEASURES WERE FINANCED]**

- Did the barriers you encountered differ based on the equipment you were financing? If so, how did you overcome those barriers?

Probes **[AS NEEDED, IF OTHER END USES WERE INSTALLED BUT NOT FINANCED]**

- What barriers did you encounter that may have prevented you from pursuing financing for this equipment?

FB2. Would you use this type of financing again for future projects? Why or why not?

Conclusion

Those are all of our questions. Thank you so much for your time in helping us complete the survey! To thank you for your time, you will receive $100. **[CONFIRM NAME AND ADDRESS FOR INCENTIVE CHECK]**

Online Verification Survey Instrument

Opinion Dynamics

Non-Residential Finance Market Baseline Study
Verification of Energy Efficient Upgrades

May 2017

Description of Study

The purpose of this study is to assess key metrics related to energy efficiency financing for small business (SB) customers in California. The results of this study will serve as a market baseline of energy efficiency financing prior to the introduction of the Small Business Statewide Finance Pilots ("the Pilots") expected in 2017.The first survey customers receive as part of this study asks if they have upgraded any energy-consuming equipment. If they have, the survey captures the type of equipment they installed and asks whether they have received rebate/s or free equipment from their utility company as a result of the upgrade (as this confirms that the equipment is energy efficient). It is challenging through a quantitative survey to determine whether the measures installed meet energy efficiency standards by going beyond the minimum code requirement. The table below describes what information is collected in the quantitative survey by measure type:

Measure Type	Data Collected in Quantitative Survey to Help Determine if Energy Efficient	Additional Data Collected in Online Tool to Help Determine if Energy Efficient
Lighting (including light bulbs, lamps, fixtures, motion sensors, and other types of equipment)	• Whether purchased/upgraded lighting included linear fluorescents (specifically T5 or T8 bulbs), CFLs, LEDs, sensors, or controls in general • Whether new light bulbs replaced existing bulbs, were newly installed, or whether bigger changes were made • Whether lighting option selected was more efficient than other options at the time of purchase/upgrade • Whether received a rebate or free lighting equipment from IOU	• Specific type of lighting equipment purchased/upgraded • Product information (i.e. brand and model number) • ENERGY STAR® Rating • Whether the equipment is set to control use of lighting (in case of lighting timers) • Photos of new lighting equipment or packaging showing product information
Cooling equipment (including central air conditioning systems, chillers, and other types of equipment)	• The efficiency rating of the new cooling equipment, including unit of efficiency rating (i.e., Seasonal Energy Efficiency Ratio (SEER), Energy Efficiency Ratio (EER), Coefficient of Performance (COP), and Kw per ton) • Whether received a rebate from IOU	• Specific type of cooling equipment purchased/upgraded • Product information (i.e. brand and model number) • ENERGY STAR® Rating • Photos of new cooling equipment and/or nameplate
Heating equipment (including furnaces, boilers, infrared heaters, and other types of equipment.)	• AFUE rating of heating equipment • Whether received a rebate from IOU	• Specific type of heating equipment purchased/upgraded • Product information (i.e. brand and model number) • ENERGY STAR® Rating • Photos of new heating equipment and/or nameplate

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Measure Type	Data Collected in Quantitative Survey to Help Determine if Energy Efficient	Additional Data Collected in Online Tool to Help Determine if Energy Efficient
Refrigeration equipment (including equipment types such as walk-in or reach-in coolers, and freezers)	• Whether refrigeration equipment included LED case lights, ENERGY STAR® rating, curtains, door controls, or other energy saving features • Whether received a rebate from IOU	• Specific type of refrigeration equipment purchased/upgraded • Product information (i.e. brand and model number) • ENERGY STAR® Rating • Photos of new refrigeration equipment and/or nameplate
Motors for pumping or fan equipment	• Whether received a rebate from IOU	• Product information (i.e. brand and model number) • Photos of new motor/s or fan equipment and/or nameplate
Energy management systems (EMS) or demand controlled ventilation (DCV)	• Whether received a rebate from IOU	• Whether an EMS or DCV was purchased • How the EMS is being used • Confirming use of DCV
Solar panels	• Whether received a rebate from IOU	• Confirming use of solar panels

As such, respondents who installed energy-related equipment will receive an invitation to participate in an online tool designed to capture information that will help the evaluation team determine if the measures meet energy efficiency standards. In an effort to determine if the upgrades are energy efficient, we will request information such as nameplate data as well as photographs using smart phones. As a token of appreciation, those who complete the online verification tool will be given a $50 VISA Gift Card.

SAMPLE VARIABLES

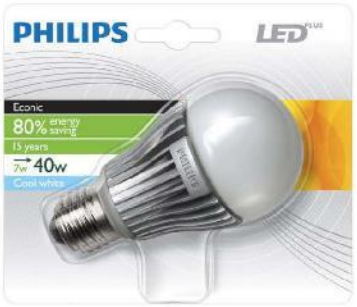
< NAME >	Respondent name
< ADDRESS >	Site address from CIS database
< LIGHTING >	Flag indicating that lighting equipment was installed
< COOLING >	Flag indicating that cooling equipment was installed
< HEATING >	Flag indicating that heating equipment was installed
< REFRIGERATION >	Flag indicating that refrigeration equipment was installed
< MOTOR_FAN >	Flag indicating that motors for pumping or fan equipment was installed
< VSD >	Flag indicating that VSDs/VFDs were installed
< EMS >	Flag indicating that an energy management system (EMS) or demand controlled ventilation (DCV) was installed
< SOLAR >	Flag indicating that solar panels were installed

INTRODUCTION

Hi [NAME]! You recently completed an interview for the California Public Utilities Commission about your business and agreed to complete a follow-up survey. Thank you for your participation in this study. The purpose of this survey is to gain more specific knowledge about the energy using equipment your company purchased or upgraded in the past two years (i.e., 2015 and 2016). In this survey, we will ask for specific information regarding the energy using equipment you purchased or upgraded such as brand name, model number or name, and other information that may help us determine the energy efficiency status of the equipment.

As part of this effort, we will also request that you upload photos of the energy using equipment your company purchased/installed (as shown in the examples below). The photos will be used for internal purposes only. As a token of our appreciation, **should you qualify and complete the survey** we will send you a **check for $50**.

Some examples of photos that we request to be uploaded are as follows:



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INSTALLATION VERIFICATION

V1. Please confirm that your company [READ IF ADDRESS IS NOT BLANK: at < ADDRESS > in < CITY >] purchased or replaced the following energy using equipment in the past two years (i.e., 2015 and 2016). **[1=Yes, 2=No]**

EQUIPMENT UPGRADED/INSTALLED	YES	NO
a. **[ASK IF LIGHTING=1]** Lighting Equipment	☐	☐
b. **[ASK IF COOLING=1]** Cooling Equipment (i.e., central air conditioning systems, chillers, and the like)	☐	☐
c. **[ASK IF HEATING=1]** Space Heating Equipment (i.e., furnaces, boilers, infrared heaters, and the like)	☐	☐
d. **[ASK IF REFRIGERATOIN=1]** Refrigeration Equipment (i.e., walk-in or reach-in coolers and freezers, and the like)	☐	☐
e. **[ASK IF MOTOR_FAN=1]** Motors for pumping or Fan Equipment	☐	☐
f. **[ASK IF VSD=1]** Variable speed drives, also known as VSDs and VFDs	☐	☐
g. **[ASK IF EMS=1]** Energy Management Systems or demand controlled ventilation (DCV)	☐	☐
h. **[ASK IF Solar=1]** Solar panels	☐	☐

V1i. Did your company purchase any other energy using equipment in the past two years (i.e., 2015 and 2016)?

01. Yes **[SPECIFY]**
02. No **[IF V1a to V1i = 0, TERMINATE, ELSE SKIP TO NEXT SECTION]**

[TERMINATION TEXT IF V1a to V1i=0:

We're sorry. You do not meet the qualifications for this survey. We sincerely thank you and appreciate your time, dedication, and continued participation in our study.]

Generate new variables according to the following logic:

NEW VARIABLE	LOGIC
V_LIGHTING	If V1a = 1, V_LIGHTING = 1, else 0
V_COOLING	If V1b = 1, V_COOLING = 1, else 0
V_HEATING	If V1c = 1, V_HEATING = 1, else 0
V_REFRIGERATION	If V1d = 1, V_REFRIGERATION = 1, else 0
V_VSD	If V1e = 1, V_VSD = 1, else 0
V_MOTOR_FAN	If V1f = 1, V_MOTOR_FAN = 1, else 0
V_EMS	If V1g = 1, V_EMS = 1, else 0
V_SOLAR	If V1h = 1, V_SLR = 1, else 0
V_OTR	If V1i = 1, V_OTR = 1, else 0

V2. For each equipment type that your company purchased or replaced, please indicate whether all, some, or none of the equipment is energy efficient.

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EQUIPMENT UPGRADED/INSTALLED	ALL	SOME	NONE
b. **[ASK IF V_COOLING=1]** Cooling Equipment (i.e., central air conditioning systems, chillers, and the like)	☐	☐	☐
c. **[ASK IF V_HEATING=1]** Space Heating Equipment (i.e., furnaces, boilers, infrared heaters, and the like)	☐	☐	☐
d. **[ASK IF V_REFRIGERATOIN=1]** Refrigeration Equipment (i.e., walk-in or reach-in coolers and freezers, and the like)	☐	☐	☐
e. **[ASK IF V_MOTOR_FAN=1]** Motors for pumping or Fan Equipment	☐	☐	☐
i. **[ASK IF V_OTR=1]** Other energy using equipment	☐	☐	☐

MEASURE VERIFICATION

In the following sections, we will ask you to provide some detailed information about the energy using equipment you installed or upgraded in the last two years (i.e., 2015 and 2016). We are interested in some very specific information such as the equipment brand and model numbers. You may need to examine the equipment or equipment packaging to provide this information. In addition, we will also request that you upload photos of the equipment, which will be used for internal purposes only. If you need to exit out of the survey to get this information, you can resume the survey where you stopped by clicking the survey link in the email invitation.

[ASK SECTION IF V_LIGHTING=1, ELSE SKIP TO NEXT SECTION]

LIGHTING VERIFICATION

L1. What type of lighting equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Compact fluorescent lamps (CFLs)
☐	b. Light emitting diodes (LEDs)
☐	c. Linear fluorescent T8
☐	d. Linear fluorescent T5
☐	e. Light sensors (i.e., occupancy or daylight sensors)
☐	f. Lighting timer
☐	g. Other **[SPECIFY]**

[ASK IF L1a=1]

L2. For the CFLs that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the CFL purchased/installed and, if possible, one picture that shows the brand and model number.

a. Brand or Manufacturer Name/s of CFLs purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the CFLs purchased/installed? **[OPEN END]**
c. Please upload photos of the CFL bulbs by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF L1b=1]

L3. For the LEDs that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the LED purchased/installed and, if possible, one picture that shows the brand and model number.

a. Brand or Manufacturer Name/s of LEDs purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the LEDs purchased/installed? **[OPEN END]**
c. Please upload photos of the LED bulbs by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF L1c=1]

L4. For the linear fluorescent T8s that your company purchased or installed, please indicate in the space provided the brand, and model number (if applicable). Please also upload a full picture of the T8s purchased/installed and, if possible, one picture that shows the brand and model number.

a. Brand or Manufacturer Name/s of T8s purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the T8s purchased/installed? **[OPEN END]**
c. Please upload photos of the T8s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF L1d=1]

L5. For the linear fluorescent T5s that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the T5s purchased/installed and, if possible, one picture that shows the brand and model number.

a. Brand or Manufacturer Name/s of T5s purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the T5s purchased/installed? **[OPEN END]**
c. Please upload photos of the T5s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF L1e=1]

L6. For the light sensors that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the light sensors purchased/installed and, if possible, one picture that shows the brand and model number.

a. Brand or Manufacturer Name/s of light sensors purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the light sensors purchased/installed? **[OPEN END]**
c. What type/s of light sensor/s did you purchase/install?
   01. Occupancy sensor
   02. Daylight sensor
   00. Other **[SPECIFY]**

[ASK IF L1f=1]

L8. Please upload photos of the lighting timers by clicking the upload button and selecting the photos to be uploaded. Note: Please upload photo/s of actual equipment showing product

information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.

[ASK IF L1g=1]

L7. For each of the other lighting equipment that your company purchased or installed, please indicate in the space provided the brand/s, model name/s or number/s (if applicable), and whether the lighting equipment is ENERGY STAR® rated.

Please also upload a full picture of the lighting equipment purchased/installed and, if possible, one picture that shows the brand and model number. If your company purchased more than one unit, please enter the product information in the fields for brand and model number for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of lighting equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the lighting equipment purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the lighting equipment your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the lighting equipment or its packaging by clicking the upload button and selecting the photos to be uploaded. Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.

[ASK SECTION IF V_COOLING=1, ELSE SKIP TO NEXT SECTION]

COOLING VERIFICATION

[ASK IF V2b=ALL OR V2b=Some]

C1. What type of **energy efficient** cooling equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Central air conditioner (CAC) (split system or packaged system)
☐	b. Ductless mini-split air conditioners (Air conditioners that have two main components: an outdoor compressor/condenser, and an indoor air-handling unit, usually mounted on a wall or ceiling and large enough to cool only a room or several small rooms)
☐	c. Room air conditioner
☐	d. Ceiling fan
☐	e. Window/Ventilation fan
☐	f. Heat pump
☐	g. Other **[SPECIFY]**

[ASK IF V2b=Some OR V2b=None]

C1_2. You mentioned that some or all of your cooling equipment **was not energy efficient**. What type of **non-energy efficient** cooling equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Central air conditioner (CAC) (split system or packaged system)
☐	b. Ductless mini-split air conditioners (Air conditioners that have two main components: an outdoor compressor/condenser, and an indoor air-handling unit, usually mounted on a wall or ceiling and large enough to cool only a room or several small rooms)
☐	c. Room air conditioner
☐	d. Ceiling fan
☐	e. Window/Ventilation fan
☐	f. Heat pump
☐	h. Other **[SPECIFY]**

[ASK IF C1a=1]

C2. For the energy efficient central air conditioner that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the central air conditioner is ENERGY STAR® rated. Please also upload a full picture of the central air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured date. If your company purchased more than one unit, please enter the product information in the fields for brand and model number for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of energy efficient central air conditioner purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the central air conditioner purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient central air conditioner units your company purchased/installed are ENERGY STAR® rated?

1. All
2. Some
3. None
8. Don't know

d. Please upload photos of the energy efficient central air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1b=1]

C3. For the energy efficient ductless mini-split air conditioner that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the ductless mini-split air conditioner is ENERGY STAR® rated. Please also upload a full picture of the ductless mini-split air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured

date. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of energy efficient ductless mini-split air conditioner purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient ductless mini-split air conditioner purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient ductless mini-split air conditioner units your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient ductless mini-split air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1c=1]

C4. For the energy efficient room air conditioner that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the room air conditioner is ENERGY STAR® rated. Please also upload a full picture of the room air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured date. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of energy efficient room air conditioner purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient room air conditioner purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient room air conditioner units your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient room air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1d=1]

C5. For the energy efficient ceiling fan that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether ceiling fan is ENERGY STAR® rated. Please also upload a full picture of the ceiling fan purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of ceiling fan purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the ceiling fan purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the ceiling fans your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient ceiling fan unit/s by clicking the upload button and selecting the photos to be uploaded.

[ASK IF C1e=1]

C6. For the energy efficient window/ventilation fan that your company purchased or installed, please indicate in the space the brand, model number (if applicable), and whether window/ventilation fan is ENERGY STAR® rated. Please also upload a full picture of the window/ventilation fan purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of energy efficient window/ventilation fan purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient window/ventilation fan purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient window/ventilation fans your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient window/ventilation fan unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1f=1]

C8. For the energy efficient heat pump that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the heat pump is ENERGY STAR® rated. Please also upload a full picture of other heat pump purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of the energy efficient heat pump purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient heat pump purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient heat pump units your company purchased/installed are ENERGY STAR® rated?
    1. All

2. Some
3. None
8. Don't know

d. Please upload photos of energy efficient heat pump by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1g=1]

C9. For the other energy efficient cooling equipment that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the cooling equipment is ENERGY STAR® rated. Please also upload a full picture of other cooling equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of the other energy efficient cooling equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other energy efficient cooling equipment purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the other energy efficient cooling equipment your company purchased/installed are ENERGY STAR® rated?
   1. All
   2. Some
   3. None
   8. Don't know

d. Please upload photos of the other energy efficient cooling equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1a_2=1]

C2_2. For the non-energy efficient central air conditioner that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the central air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured date. If your company purchased more than one unit, please enter the product information in the fields for brand and model number for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of non-energy efficient central air conditioner purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the non-energy efficient central air conditioner purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient central air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1b_2=1]

C3_2. For the non-energy efficient ductless mini-split air conditioner that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable).Please

also upload a full picture of the ductless mini-split air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured date. If your company purchased more than one unit, please enter the product information for each one and upload a photo for each one.

a. Brand or Manufacturer Name/s of non-energy efficient ductless mini-split air conditioner purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the non-energy efficient ductless mini-split air conditioner purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient ductless mini-split air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1c_2=1]

C4_2. For the non-energy efficient room air conditioner that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable. Please also upload a full picture of the room air conditioner purchased/installed and, if possible, one picture that shows the brand, model number, SEER rating (if available), and manufactured date. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of non-energy efficient room air conditioner purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the non-energy efficient room air conditioner purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient room air conditioner unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1d_2=1]

C5_2. For the non-energy efficient ceiling fan that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable). Please also upload a full picture of the ceiling fan purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of ceiling fan purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the ceiling fan purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient ceiling fan unit/s by clicking the upload button and selecting the photos to be uploaded.

[ASK IF C1e_2=1]

C6_2. For the non-energy efficient window/ventilation fan that your company purchased or installed, please indicate in the space the brand, model number (if applicable). Please also upload a full picture of the window/ventilation fan purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of non-energy efficient window/ventilation fan purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the non-energy efficient window/ventilation fan purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient window/ventilation fan unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1f_2=1]

C8_2. For the non-energy efficient heat pump that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable),. Please also upload a full picture of other heat pump purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information. If your company purchased more than one unit, please enter the product information for each one and upload a photo for up to three units.
a. Brand or Manufacturer Name/s of the non-energy efficient heat pump purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other non-energy efficient heat pump purchased/installed? **[OPEN END]**
c. Please upload photos of non-energy efficient heat pump by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF C1g_2=1]

C9_2. For the non-energy efficient other cooling equipment that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the cooling equipment is ENERGY STAR® rated. Please also upload a full picture of other cooling equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
a. Brand or Manufacturer Name/s of the other non-energy efficient cooling equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other non-energy efficient cooling equipment purchased/installed? **[OPEN END]**
c. Please upload photos of the other non-energy efficient cooling equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_HEATING=1, ELSE SKIP TO NEXT SECTION]

HEATING VERIFICATION

[ASK IF V2c=ALL OR V2c=Some]

H1. What type of **energy efficient** space heating equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Boiler

	EQUIPMENT UPGRADED/INSTALLED
☐	b. Furnace
☐	**[ASK IF C1f=2 OR C1f_2=2]** c. Heat pump
☐	d. Space heater
☐	e. Other heating equipment [Specify]

[ASK IF V2c=Some OR V2c=None]

H1_2. You mentioned that some or all of your space heating equipment **was not energy efficient**. What type of **non-energy efficient** space heating equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Boiler
☐	b. Furnace
☐	**[ASK IF C1f=2 OR C1f_2=2]** c. Heat pump
☐	d. Space heater
☐	e. Other heating equipment [Specify]

[ASK IF H1a=1]

H2. For the energy efficient boiler that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the boiler is ENERGY STAR® rated. Please also upload a full picture of the boiler purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient boiler purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the energy efficient boiler purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient boiler units your company purchased/installed are ENERGY STAR® rated?

1. All
2. Some
3. None
8. Don't know

d. Please upload photos of the energy efficient boiler unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1b=1]

H3. For the energy efficient furnace that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the furnace is ENERGY STAR® rated. Please also upload a full picture of the furnace purchased/installed and,

if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient furnace purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient furnace purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient furnace units your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient furnace unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1c=1 AND C1f=2]

H4. For the energy efficient heat pump that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the heat pump is ENERGY STAR® rated. Please also upload a full picture of the heat pump purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient heat pump purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient heat pump purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient heat pump units your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the energy efficient heat pump unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1e=1]

H5. For the other energy efficient heating equipment that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the other heating equipment is ENERGY STAR® rated. Please also upload a full picture of the other heating equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of other energy efficient heating equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other energy efficient heating equipment purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient heating equipment your company purchased/installed are ENERGY STAR® rated?
   1. All
   2. Some
   3. None
   8. Don't know

d. Please upload photos of the other energy efficient heating equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1a_2=1]

H2_2. For the non-energy efficient boiler that your company purchased or installed, please indicate in the space the brand, model number (if applicable). Please also upload a full picture of the boiler purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of non-energy efficient boiler purchased/installed? **[OPEN END]**
   b. Model name/s or model number/s of the non-energy efficient boiler purchased/installed? **[OPEN END]**
   c. Please upload photos of the non-energy efficient boiler unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1b_2=1]

H3_2. For the non-energy efficient furnace that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the furnace is ENERGY STAR® rated. Please also upload a full picture of the furnace purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of non-energy efficient furnace purchased/installed? **[OPEN END]**
   b. Model name/s or model number/s of the non-energy efficient furnace purchased/installed? **[OPEN END]**
   c. Please upload photos of the non-energy efficient furnace unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1c_2=1 AND C1f_2=2]

H4_2. For the non-energy efficient heat pump that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the heat pump is ENERGY STAR® rated. Please also upload a full picture of the heat pump purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of non-energy efficient heat pump purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the non-energy efficient heat pump purchased/installed? **[OPEN END]**
c. Please upload photos of the non-energy efficient heat pump unit/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF H1e_2=1]

H5_2. For the other non-energy efficient heating equipment that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable). Please also upload a full picture of the other heating equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
a. Brand or Manufacturer Name/s of other non-energy efficient heating equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other non-energy efficient heating equipment purchased/installed? **[OPEN END]**
c. Please upload photos of the other non-energy efficient heating equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_REFRIGERATION=1, ELSE SKIP TO NEXT SECTION]

REFRIGERATION VERIFICATION

[ASK IF V2d=ALL OR V2d=Some]

R1. What type of **energy efficient** refrigeration equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Refrigerator
☐	b. Freezer
☐	c. Ice maker
☐	d. Other [Specify]

[ASK IF V2d=Some OR V2d=None]

R1_2. You mentioned that some or all of your refrigeration equipment was **not energy efficient**. What type of **non-energy efficient** refrigeration equipment did your company purchase or install? Please select all that apply. **[MULTIPLE RESPONSE]**

	EQUIPMENT UPGRADED/INSTALLED
☐	a. Refrigerator
☐	b. Freezer
☐	c. Ice maker

	EQUIPMENT UPGRADED/INSTALLED
☐	d. Other [Specify]

[ASK IF R1a=1]

R2. For the energy efficient refrigerator that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the refrigerator is ENERGY STAR® rated. Please also upload a full picture of the refrigerator purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient refrigerator purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the energy efficient refrigerator purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient refrigerator units your company purchased/installed are ENERGY STAR® rated?

1. All
2. Some
3. None
8. Don't know

d. Please upload photos of energy efficient refrigerator/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1b=1]

R3. For the energy efficient freezer that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the freezer is ENERGY STAR® rated. Please also upload a full picture of the freezer purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient freezer purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the energy efficient freezer purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient freezer units your company purchased/installed are ENERGY STAR® rated?

1. All
2. Some
3. None
8. Don't know

d. Please upload photos of energy efficient freezer/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1c=1]

R4. For the energy efficient ice maker that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the ice maker is ENERGY STAR® rated. Please also upload a full picture of the ice maker purchased/installed and, if

possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of energy efficient ice maker purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient ice maker purchased/installed? **[OPEN END]**
c. Would you say that all, some, or none of the energy efficient ice maker units your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of energy efficient ice maker/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1d=1]

R5. For the other energy efficient refrigeration equipment that your company purchased or installed, please indicate in the space provided please indicate the brand, model number (if applicable), and whether the other refrigeration equipment is ENERGY STAR® rated. Please also upload a full picture of the other refrigeration equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of the other energy efficient refrigeration equipment purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the other energy efficient refrigeration equipment purchased/installed? **[OPEN END]**
c. Would you say that all, some or, none of the energy efficient refrigeration equipment your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of the other energy efficient refrigeration equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1a_2=1]

R2_2. For the non-energy efficient refrigerator that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the refrigerator is ENERGY STAR® rated. Please also upload a full picture of the refrigerator purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of non-energy efficient refrigerator purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the non-energy efficient refrigerator purchased/installed? **[OPEN END]**
c. Please upload photos of non-energy efficient refrigerator/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1b_2=1]

R3_2. For the non-energy efficient freezer that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the freezer is ENERGY STAR® rated. Please also upload a full picture of the freezer purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of non-energy efficient freezer purchased/installed? **[OPEN END]**
   b. Model name/s or model number/s of the non-energy efficient freezer purchased/installed? **[OPEN END]**
   c. Please upload photos of non-energy efficient freezer/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1c_2=1]

R4_2. For the non-energy efficient ice maker that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the ice maker is ENERGY STAR® rated. Please also upload a full picture of the ice maker purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of non-energy efficient ice maker purchased/installed? **[OPEN END]**
   b. Model name/s or model number/s of the non-energy efficient ice maker purchased/installed? **[OPEN END]**
   c. Please upload photos of non-energy efficient ice maker/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF R1d_2=1]

R5_2. For the other non-energy efficient refrigeration equipment that your company purchased or installed, please indicate in the space provided please indicate the brand, model number (if applicable), and whether the other refrigeration equipment is ENERGY STAR® rated. Please also upload a full picture of the other refrigeration equipment purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.
   a. Brand or Manufacturer Name/s of the other non-energy efficient refrigeration equipment purchased/installed? **[OPEN END]**
   b. Model name/s or model number/s of the other non-energy efficient refrigeration equipment purchased/installed? **[OPEN END]**
   c. Please upload photos of the other non-energy efficient refrigeration equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency

rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_VSD=1, ELSE SKIP TO NEXT SECTION]

VARIABLE SPEED DRIVE VERIFICATION

VSD1. Please upload photos of the Variable Speed Drives also known as VSDs or VFDs by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_MOTOR_FAN=1, ELSE SKIP TO NEXT SECTION]

MOTOR OR FAN EQUIPMENT VERIFICATION

[ASK IF V2e=ALL OR V2e=Some]

MF1. For the electric commutated motor (ECM) or other energy efficient motor or fan equipment that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the motor purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of the energy efficient motor purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the energy efficient motor purchased/installed? **[OPEN END]**
c. Would you say that all, some or, none of the ECM or other energy efficient motor or fan equipment your company purchased/installed are ENERGY STAR® rated?
    1. All
    2. Some
    3. None
    8. Don't know

d. Please upload photos of energy efficient motor/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF V2e=Some OR V2e=None]

MF1_2. For the non-energy efficient motor or fan equipment that your company purchased or installed, please indicate in the space provided the brand and model number (if applicable). Please also upload a full picture of the motor purchased/installed and, if possible, one picture that shows the nameplate or label that contains the brand, model number, and other product information.

a. Brand or Manufacturer Name/s of the non-energy efficient motor purchased/installed? **[OPEN END]**
b. Model name/s or model number/s of the non-energy efficient motor purchased/installed? **[OPEN END]**
c. Please upload photos of non-energy efficient motor/s by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_EMS=1, ELSE SKIP TO NEXT SECTION]

ENERGY MANAGEMENT SYSTEM (EMS) OR DEMAND CONTROLLED VENTILATION (DCV) VERIFICATION

[ASK IF V_EMS=1]

E1. Which of the following did your company purchase? Please select all that apply. **[MULTIPLE RESPONSE]**

	USE/S OF EMS
☐	a. Energy Management System (EMS)
☐	b. Demand Controlled Ventilation (DCV) System

[ASK IF E1a=1]

E2. For the Energy Management System (EMS) that your company purchased or installed, please upload photos of the Energy Management System (or its packaging, if available) by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK IF E1b=1]

E3. For the Demand Controlled Ventilation (DCV) system that your company purchased or installed, please upload photos of the DCV system (or its packaging, if available) by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

[ASK SECTION IF V_SOLAR=1, ELSE SKIP TO NEXT SECTION]

SOLAR PANELS VERIFICATION

S1. Please upload photos of the Solar Panels by clicking the upload button and selecting the photos to be uploaded.

Note: Please upload photo/s of actual equipment showing product information if possible.

OTHER ENERGY USING EQUIPMENT

[ASK IF V2i=Some OR V2i=None]

OR1. You mentioned that some or all of the other energy using equipment you purchased or installed **was not energy efficient**. What type of **non-energy efficient** equipment did your company purchase or install? Please enter all that apply. **[OPEN END]**

[ASK IF V2i=ALL OR V2i=Some]

OR2. For the energy efficient equipment that your company purchased or installed, please indicate in the space provided the brand, model number (if applicable), and whether the energy efficient equipment is ENERGY STAR® rated. Please also upload a full picture of the energy efficient equipment purchased/installed and, if possible, one picture that shows the brand, model number, and manufactured date. If your company purchased more than one unit, please enter the product information in the fields for brand and model number for each one and upload a photo for up to three units.

a. Brand or Manufacturer Name/s of energy efficient equipment purchased/installed? **[OPEN END]**

b. Model name/s or model number/s of the energy efficient equipment purchased/installed? **[OPEN END]**

c. Would you say that all, some, or none of the energy efficient equipment your company purchased/installed are ENERGY STAR® rated?

1. All
2. Some
3. None
8. Don't know

d. Please upload photos of the energy efficient equipment by clicking the upload button and selecting the photos to be uploaded. [Note: Please upload photo/s of actual equipment showing product information (brand, model number, etc.), efficiency rating or ENERGY STAR® logo, and/or nameplate clearly showing product information if applicable.]

CLOSING

CL1. As indicated earlier, you will receive a check for $50 for completing this survey. For this purpose, we would like to confirm your name and mailing address for the check.

CL1a. Name: **[OPEN END]**
CL1b. Mailing Address: **[SPECIFY MAILING ADDRESS]**

Those are all the questions I have today. Thank you for your participation in this study.

D. Appendix: Itron Commercial Evaluation Participant Survey 2013-2014 Finance Questions

	Participant Survey for CPUC 2013-2014 Commercial Evaluation	
	FINANCE QUESTIONS	
	I would like to ask you about funding this project. Funding could include external financing such as a company credit card, getting financing through a contractor or retailer, getting a bank loan or internal financing such as using retained earnings. Did you use internal or external funding for this project?	
FIN1		
1	Internal funding	SURVEY_OP_HOURS
2	External funding	FIN2
3	Combination of internal and external funding	FIN2
88	Refused	SURVEY_OP_HOURS
99	Don't know	SURVEY_OP_HOURS
	[ASK IF FIN1 = 2, 3] We are interested in known what type of external financing you used? Did you use….[READ THROUGH FULL LIST, RECORD 1=Yes, 2=No, 88=Refused, 99=Don't Know]	
FIN2		
FIN2A	Contractor financing	Y, N, Ref, DK
FIN2B	Vendor financing [FOR INTERVIEWER: for example, taking a store loan from SEARS to buy an appliance]	Y, N, Ref, DK
FIN2C	Secured loan from bank [FOR INTERVIEWER: a loan using property or assets as collateral or lien on the business]	Y, N, Ref, DK
FIN2D	Unsecured loan from bank [FOR INTERVIEWER: a loan which does not require a collateral]	Y, N, Ref, DK
FIN2E	Line of credit	Y, N, Ref, DK
FIN2F	Equipment financing or leasing	Y, N, Ref, DK
FIN2G	Company credit card	Y, N, Ref, DK
FIN2H	Energy efficiency financing program (please specify)	Y, N, Ref, DK
FIN2I	&UTILITY sponsored on-bill financing	Y, N, Ref, DK
FIN2J	Property Assessed Clean Energy (PACE) Financing	Y, N, Ref, DK
FIN2K	Any other type of financing (please specify)	Y, N, Ref, DK

Source: Itron, Inc. (2014) *Participant Survey for California Public Utilities Commission 2013-2014 Commercial Evaluation* [Microsoft Excel Spreadsheet].